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SEPTEMBER, 1907



American Bee Journal



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- 1st.—To promote the interests of its members.
- 2d.—To protect and defend its members in their lawful rights.
- 3d.—To enforce laws against the adulteration of honey.

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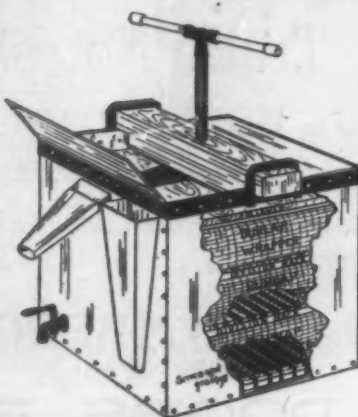
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118 W. JACKSON.

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[Mr. Poudet's Nut-Butter is fine.—Editor American Bee Journal.]

American Bee Journal

Trade Notes The A. I. Root Company, Medina, Ohio

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Freeport, Ill., June 11, 1907.


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Medina, O.

Gentlemen:

I received five of your AE52S-10 hives yesterday and find that I cannot make my own hives and supplies as cheap as yours and use the same quality of lumber. You can see by the head of this letter that if anyone can make hives cheaper than your prices or any of the so-called "trust hive" manufacturers, I ought to be able to do it, but using the same quality of lumber I cannot.

Yours very truly,

(Signed) John H. Bamberger.

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(Entered as second-class mail-matter at the Chicago, Ill., Post-Office.)

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GEORGE W. YORK, Editor

CHICAGO, ILL., SEPTEMBER, 1907

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Backward Season General

Reports from different parts of the world seem to show that almost everywhere cold and wet have delayed the season. One result has been loss of colonies from starvation where the owners have not been thoughtful enough to replace stores used up by the unusually long spring. The editor of the Irish Bee Journal says: "In our own apiary, feeding was continued daily up to July 9, when the rain stopped."

Where colonies were kept supplied with stores, bees seemed to develop in strength wonderfully, in spite of the cold, and in some places at least, the spring running into summer did not seem to have such a very bad effect, for it merely postponed the time of blooming. In Northern Illinois June and July are par excellence the months of white-clover bloom generally. This year there was more clover bloom in August than in June, if, indeed, not more than in July.

Next spring may not be so late as the past one, but it is likely to be late enough, and this is a good place to repeat the advice to store up a number of combs of sealed honey to be used next spring wherever they will do the most good.

Strengthening Weak Colonies

If one has a greater or less number of weak colonies on hand, the manner in which they are to be strengthened depends upon circumstances. Whatever the plan taken, the idea should be to have each colony so strengthened or united that it shall have enough bees to cover 5 or 6 combs. A colony with

3 frames of bees may be united with another having 2 or 3 frames of bees; understanding by a frame of bees enough bees to cover well a brood-frame, or brood-comb. Three colonies having 2 frames of bees each may be united into a single colony. If one should have several colonies of 4 frames each, then one or more of them can be broken up, and one or 2 frames given to each of the others. If, fortunately, there is only a single weakling, its bees may be given to one or more of the weaker of the full colonies. These will be just so much the stronger, whereas, if the weakling is left it will be practically worthless.

Extra Combs of Honey for Next Spring

This subject may have been mentioned times enough so that many may be excused from reading this item. But its great importance for the many new readers is a sufficient excuse for mentioning the subject again.

Unwarned upon the subject, the beginner who has an early flow of light honey and a late flow of dark honey is likely to get all of the fall honey as surplus, except what the bees store in the brood-chamber. This last, if it be not exhausted before, is pretty certain to be all used up at the time the white-honey harvest begins the next season. Of course, the brood does not entirely fill all of the cells in the brood-chamber, and the vacant cells will be filled with several pounds of white honey. Now if said beginner had had extra combs of fall honey to give to the bees in the spring, this first white honey, instead of going into the brood-combs,

could just as well have gone into the surplus apartment. It will be seen that it is a plain question as to whether so many pounds for the market shall be light or dark.

Nor is this all the difference in the case. A colony in the spring will not rear as much brood with a meager supply as it will when abundant stores are present. The beginner is likely to think, "So long as the bees are not allowed to run out of stores, I don't see why they'll not rear as much brood with a half-pound ahead as if they had 10 pounds in sight." Well, they'll not; no matter how they may reason about it, they *seem* to know that when they have a big lot of stores in sight they can go into brood-rearing on a large scale.

So when the fall flow begins, see that a fair share of it is in sealed brood-combs ready for the next spring, as well as to meet any emergency in the fall. For 8-frame hives 2 or 3 such combs for each colony in the spring will be none too many. For 10-frame hives, a less quantity may or may not be needed.

Wintering Reserve Queens

About this time of year the question is often raised whether one may not keep over extra queens, ready to be given in the spring to any colonies that may have become queenless. No way seems to have come into general favor that differs greatly from keeping each queen in a weak colony. Considerable can be gained, however, by keeping 2 nuclei in a hive. Separate the hive into two compartments by means of a division-board $\frac{3}{4}$ to $\frac{1}{2}$ -inch thick, and be sure that it is bee-tight. Let the brood-nest of each nucleus come close against this division-board. The bees of each nucleus will cluster close against this partition, forming what seems to be one globular mass, with the partition thrust between them.

In the spring, if one of the queens is needed elsewhere, it can be taken, and the 2 nuclei united into a full colony. If there is no need to take either queen away, let the nuclei build up until too large for their narrow quar-

American Bee Journal

ters. Separately they would make very slow work at building up in early spring; but a surprising difference will be seen if they are allowed to remain together, thus furnishing mutual heat. When either nucleus becomes crowded, each one can have a full hive to itself.

This plan may be varied by having the partition to one side of the hive instead of in the middle. The smaller compartment may be large enough to contain a 2-frame nucleus, and into the larger compartment may be crowded a full colony.

Why Do Bees Swarm?

E. W. Diefendorf discusses this question in the Bee-Keepers' Review, and gives—not at all in a dogmatic, but in a sort of tentative way—as a possible answer, that the queen becomes tired or exhausted. He gives some good arguments in favor of such view: A queen reared at the opening of the swarming season is not likely to come off with a swarm during that season; a queen can not become exhausted in a nucleus, and he has never known such a one to swarm; in Dr. Miller's foundation treatment the queen is allowed a rest, etc.

Abuse of Smoke on Bees

Smoke is a good thing, but it may be used so as to do harm. To quiet bees it is not necessary to deluge them with smoke until they boil out all over the hive. A little, at first, and a little more afterward if they need it, but only as they need it.

But there is another way in which smoke may become an abuse that sometimes is not thought of. It is when taking surplus honey from the bees. A sufficient amount of smoke will entirely rid of bees the sections or extracting combs, but the amount required is generally so great that the flavor of the honey will be badly injured. Some may think that the smoke will be evaporated in a little while. Such persons should remember the enduring flavor of smoke in smoked hams. The flavor of smoke may be relished in hams, but it is very bad in honey.

Improvement in Introducing Queens

If the queen of a colony be removed and a strange queen, at the same opening of the hive, be placed upon the combs, one may confidently expect the bees promptly to seize the intruder and ball her till she is dead. Instead of putting her loose on the combs, if she be caged in the hive for 3 or 4 days, and then set free upon the combs, she may expect a kindly reception. That kindly reception is made more sure if she be allowed to walk out of the cage quietly at a time when there has been no disturbance by the opening of the hive. To this end a passage filled with bee-candy is provided, so that the bees may quietly release the queen, but they will do this generally inside of 24 hours, which is too short a time for best results. The Abbott plan, leaving the queen caged in the hive 48 hours, then removing the old queen and at the

same time giving the bees access to the candy, works well. To avoid the trouble of opening the hive a second time, use has been made of a piece of cardboard over the candy, which the bees must gnaw away before getting at the candy, thus prolonging the time of imprisonment.

Dr. Miller reports a plan he is trying, which he thinks may be an improvement. Take a splint of wood 1-16 inch square and a little longer than the tube of candy, and thrust it through the center of the candy. That's all; the bees do the rest, taking about 3 days to liberate the queen.

It will be well if others who try the plan repeat what success or failure they meet.

Saltpeter for Lighting Smokers

Much time is lost one time and another in blowing a smoker to get the fire started. One of the best lighters is a piece of cotton rag lightly saturated with saltpeter. If heavily saturated, the rag burns up too quickly, almost like an explosion, and the fuel has not time to be lighted. A pound of saltpeter to 2 gallons of water is a sufficiently strong solution in which to soak the rags. Let them be thoroughly wet through, wring or drain them out, and then dry as you would dry a washing.

When you wish to light your smoker, take a rag 5 or 6 inches square, roll it up into something like a ball, touch a match to it, throw it into the smoker, quickly fill the smoker with fuel, and then blow. No fear of putting it out; if the smallest corner is lighted it will not go out till the whole rag is burnt up, and if your fuel is at all fit, it will be surely lighted.

A supply of saltpeter rags prepared in the spring—the preparation is a trifle—will save many a 5 minutes throughout the season, as well as some loss of temper.

Weber's Entrance Comptroller

A sample of Weber's patent entrance comptroller and protector for bees during spring and winter flights has been received. This is a very ingenious contrivance for use in outdoor wintering, or for early spring use, after bees are brought out of the cellar. Its object is to keep the bees confined to the hive, and at the same time allow the entrance of fresh air. This is easily accomplished by closing the entrance with wire-cloth; but thus confining the bees while the light is allowed to shine in the entrance is well known to be ruinous. Mr. Weber has taken advantage of the fact that light proceeds in straight lines, and will not readily travel around a corner, and has so arranged that an entrance 4 inches long and $\frac{5}{8}$ -inch deep may be open all winter long for the admission of air, but coarse wirecloth prevents the passage of bees, and the course the air travels prevents the admission of light.

A metal slide, centrally located, closes the direct entrance. When thus closed, the air passes sideways $3\frac{1}{2}$ inches, turns a corner and passes around a middle partition, traveling sideways again an-

other $3\frac{1}{2}$ inches to enter the hive. By the time light travels this distance in such a devious way, its strength will have been dissipated. At any time when it is thought best to allow free exit, the slide may be withdrawn, giving the bees the full direct entrance. The slide may be shoved sideways, so as to make the entrance any desired width from that of allowing a single bee to pass at a time up to the full 4 inches, allowing at the same time the direct entrance of the light. Or, if it be deemed advisable to allow a limited entrance without the admission of light, the metal slide may close all but an inch at one side, while an outside block covers all but an inch at the other side; thus again taking advantage of the fact that light travels in straight lines and objects to turning corners.

Just how much advantage there may be in the use of such a contrivance can only be told after trial, but it certainly seems well designed for the purpose it is to serve.

Bee-Disease in the Isle of Wight

That Isle-of-Wight disease, according to information in the Irish Bee Journal, is a more serious matter than might have been supposed. Of the bees on the island, 85 or 90 percent are dead and others dying, and H. W. Cooper, local secretary of the Association says:

"Those of us on the spot who know something of the havoc by this scourge, have not as yet discovered anything wrong with the brood."

Which makes it much to be feared that a new bee-disease is to be added to the list, and as such diseases are not always careful to confine their attentions to a small island, we in this country can not fail to be interested in keeping on the watch as to the outcome.

Unite Colonies in Good Season

At this time of year there are likely to be a good many colonies so weak that if left as they are they will stand small chance to live through the winter. The beginner, anxious to increase the number of his colonies, keeps hoping that they will build up strong enough, and finally he is likely to enter the winter with a lot of weaklings on hand, and a lot of empty hives next spring. No time should be lost in uniting such colonies until no weakling is left. The time will be none too long for the united colonies to get settled down into comfortable shape for winter. Besides, bees will unite more kindly now than later.

Bees Balling Their Own Queen

It seems a strange thing, but it is true, that sometimes a colony will ball its own queen. Perhaps the excitement of opening the hive is the cause, and if the excitement is kept up by the bee-keeper trying to free the queen, her death may result. If the hive is quickly closed when a queen is found balled, the bees will of themselves generally release her without any harm. So don't try to release the queen from the ball, but close the hive, and don't open it again that day.

American Bee Journal



Subscription Price Now 50c a Year

On July 1, 1907, when we decided to change the American Bee Journal from a 16-page weekly to a 32-page monthly publication, we reduced the price from \$1.00 a year to 25 cents. We have since discovered that the 25-cent rate is entirely too low, in view of the kind of a bee-paper we are making every month. We do not wish to lower the standard now, and as labor, materials of all kinds including white paper, etc., have advanced in cost, we feel that the best thing we can do—in fact, the only thing to do—is to put the subscription price at 50 cents a year; in Chicago, 75 cents; in Canada, 60 cents; and in all other countries in the Postal Union, 25 cents a year extra for postage, or 75 cents. These new rates will begin with September, 1907.

We are sure that our hosts of readers and friends will feel we are doing the right thing in this, as they certainly would not want us to continue at too low a subscription price. At 50 cents a year, this 32-page copy would cost the subscriber only about 4 cents—two 2-cent stamps—surely cheap enough, when its valuable contents are considered. Why, "Dr. Miller's Question-Box" alone is worth many times the subscription price, to say nothing of all the other valuable departments.

It is our intention to keep the old American Bee Journal at the head of the procession, where it has been for so many years. And to do this we will need the hearty co-operation of all our readers. There are yet thousands of bee-keepers who have never heard of the American Bee Journal. Many of them are your neighbors; can you not show them what they are losing by not having it every month?

On another page we offer many useful things as premiums for getting new subscriptions. We will be pleased to mail sample copies to any names and addresses of bee-keepers that may be sent to this office. If every present subscriber would send in just one new subscription during this month, by Oct. 1st our list would be doubled. Why not do at least that much to help along a good cause—your own cause? We are ready to do our part—will you, dear reader, not join with us in putting the monthly circulation of the old American Bee Journal up to where it ought to be?

The National at Harrisburg

It has finally been definitely settled that the 1907 convention of the National Bee-Keepers' Association is to be held at Harrisburg, Pa., on October 30 and 31. On account of the Jamestown Exposition there will be low rates on the

railroads, and stop-overs at Harrisburg can be had on tickets from the west.

The last of October should be a good time for bee-keepers to go. Why not assemble here in Chicago on October 28 or 29 and go in a special car the rest of the way? Perhaps this can be done.

Swarm of Bees in a City Street

Some reader in California sends us a clipping from the Los Angeles Times, which describes a "pointed" and amusing experience with a swarm of bees in a Los Angeles street recently. It is surprising how fully most people let bees alone when they are not accustomed to them, or when not dressed for a bee-reception.

Cause of American Foul Brood

Dr. G. F. White, who is now connected with the Bureau of Entomology of the Department of Agriculture at Washington, D. C., has written an article on the above subject, which has been issued as Circular No. 94. It will be found on another page of this number, and deserves a careful reading. Dr. White acknowledges the assistance of Dr. E. F. Phillips in the experimental work done which led up to the preparation of the circular mentioned.

The National Association

On August 8th, General Manager, N. E. France, of Platteville, Wis., sent out the following information relative to the National Bee-Keepers' Association:

I ask each of our members to mail to me a few questions on bee-keeping with the name of the persons they prefer to have answer them. At the Convention, which meets at Harrisburg, Pa., October 30 and 31, 1907, I will read the questions that are sent in.

The National Association is planning to make a creditable exhibit of honey at the World's Pure Food Show to be held in the Coliseum, at Chicago, November 19th to 25th. I would ask any bee-keepers who are willing, and can do so, to help in this display by furnishing me one pound of choice, extracted honey of each kind their bees gather. Be sure to display your honey at the County Fair this fall. It is a good place to advertise.

What honey you produce and sell you can label with your name as producer. If you buy honey to sell, it must not have your label on it unless it also has the words, "Distributed by" in briefer type. "It is the intention of the law

that labels on all food products should not be misleading in any particular."

All over the United States, until in June, bad weather was reported. Colonies of bees were weak and dying so that when the honey crop came there were very few bee-keepers who had bees ready to take advantage of it. I have seen reports from nearly every State, and but few have an average crop; many have nothing. During the last few days the reports have been better, especially in the clover belts. Basswood has generally yielded no honey, or at least a very small amount. Sweet clover and alfalfa did better. On the whole there will not be over half a crop of honey this year. Prices should be better than last year, and I hope they will be asked.

N. E. FRANCE, Gen. Mgr.

Some Generous "Donations"

"Ye Editor" and wife have been the recipients of some good things to eat during the past month or two, from several of our generous readers. We wish to return our thanks for the following:

Strawberries, from Dr. and Mrs. C. C. Miller, of Marengo, Ill.

Peanut butter, from Walter S. Pouder, of Indianapolis, Ind.

Blackberries, from J. L. Strong, of Clarinda, Iowa.

We wish to mention specially the peanut butter, which is a somewhat new article on the market, we believe. The kind Mr. Pouder makes is great.

Kind Words from Contemporaries

The Bee-Keepers' Review was the first to note the change of the American Bee Journal from a weekly to a monthly, in this paragraph:

"The American Bee Journal is to be changed to a 32-page, 25-cent monthly. Brother York hopes thereby to greatly increase the circulation and usefulness of his journal—that every bee-keeper, even with a single colony, will become a subscriber."

The American Bee-Keeper for August contained this very complimentary notice:

"The American Bee Journal, for many years a weekly periodical, appeared for July as a monthly, and will be so issued in the future. The subscription price has been reduced to 25 cents a year, and a very marked improvement in the general appearance of the paper results from the use of a high-grade stock of paper. The cover design of the first monthly edition is the handsomest that has adorned any bee-journal of modern times, being a skillful combination of photograph, wash and air brush. Really artistic pictures are rare in the apicultural press, but the American Bee Journal's cover scores an average above ninety. Congratulations, Brother York!"

Gleanings in Bee Culture had this cordial paragraph in its issue for August 15th:

"The 'Old Reliable' is now issued as a monthly of 32 pages at 25 cts. per year, instead of a weekly of 16 pages at \$1.00. The new monthly has a new half-tone

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cover that is very neat, and the general make-up, appearance, and contents are practically the same as heretofore. The low price of the publication (25 cts. per year), and the general excellence of the matter, should and probably will make it very popular. We wish it abundant success."

Midnight Swarming Bees

Mr. A. Straub is a Chicago bee-keeper who has 18 colonies of bees. He called at our office recently, and reported that about midnight of August 14 one of his colonies cast a swarm of bees. It was about a peck in size, and settled on a small tree near his home. The swarm was hived the next morning, and went to work in good earnest. It must have been that they were too busy to swarm in the day-time.

World's Pure Food Show

More than one-third of the space for the World's Pure Food Show at the Coliseum, Chicago, next November 19 to 25, has already been contracted for. The big food interests throughout the country are heartily in accord with the exposition, and are eager to compete for awards before the greatest pure-food tribunal ever gathered together. The Commission on Tests includes Dr. Harvey W. Wiley, chief of the bureau of chemistry of the United States department of agriculture; Hon. Alfred H. Jones, Illinois State Food Commissioner; Dr. James A. Egan, Secretary Illinois State Board of Health; Dr. T. J. Bryan, State Analyst of the Illinois State Food Commission; Dr. W. A. Evans, Chicago Commissioner of Health; Dr. Walter Haines and half a dozen other leading chemists of the United States.

A California Association has announced its intention to ship huge bunches of many of the 640 varieties of grapes grown in the Golden State to the exposition for decorative purposes. Schwarzschild & Sulzberger Co., were the first of the big packers to sign for space, and have taken an entire section of over 1,500 square feet. The food departments of The Fair, The Boston Store and other big Chicago department stores will be represented.

Other prominent exhibitors will be The Great Western Cereal Co., The International Banana Food Co., The Blue Ribbon Chewing Gum Co., Red Cross Olive Oil, Rueckheim Bros. & Ekstein, etc.

All the booths in the big building will be uniform in design and color. An aisle 15 feet wide will run all around the building. This will be flanked on the outside by scenic representations of shops of all nations and times.

It is the purpose of the management to dispose of all space at least 2 months before the date the exposition opens, so that every effort can be devoted to attracting an enormous crowd of spectators. Sufficient aisle space has been allowed to handle over 20,000 spectators daily.

We referred to the coming pure-food show in these columns in June. We

understand that the National Bee-keepers' Association is to have an exhibit of honey. General Manager France has already begun to work it up. We will doubtless have more to say about it next month. Honey-producers should be well represented, as they produce one of the finest of all foods.

Mr. Secor and His Yucca Plant

Hon. Eugene Secor, of Forest City, Iowa, sent us recently the picture herewith, showing himself and a yucca plant that was 5 feet and 7 inches high on July 30, 1907, when the picture was taken. Mr. Secor is well known to bee-



keepers, not only as an expert apiarist, but also on account of the many beautiful poems he has written bearing on the bees and their interesting nature. It seems almost time for another one to come from his mellifluous pen. Perhaps the muse's spirit will soon possess him, and his many friends will possess another rhythmic gem.

The Kansas Convention

The Kansas State Bee-keepers' Association will hold its next annual meeting at Hutchinson, September 18 and 19, 1907. All persons interested in bees are invited to attend. This meeting will occur during the State Fair, so there will be reduced rates on all the railroads. The meetings will be held at the Commercial Club rooms. The first session will be 2:30 p. m., Sept. 18. Head-

quarters for bee-keepers will be at the Midland Hotel. O. A. KEENE, Sec.
Topeka, Kans.

Fair Apiarian Premiums

In last issue we gave the apiarian premium lists of several leading Fairs. There are no better places for bee-keepers to educate the public to the use of honey, and to the growing importance of bees and their products.

On Sept. 27 to Oct. 5, at Springfield, will be held the Illinois State Fair. The premiums offered on bees and honey are as follows:

	1st.	2d.	3d.
Display of Comb Honey	\$20	\$15	\$10
Collection of labeled cases containing 12 or more pounds of White Honey from different flowers	8	5	1
Collection of labeled cases containing 12 or more pounds of Amber or Dark Honey from different flowers	8	5	3
Case of White Clover Comb Honey, 12 to 24 pounds....	4	3	2
Case of Sweet Clover Comb Honey, 12 to 24 pounds....	4	3	2
Case of Basswood Comb Honey, 12 to 24 pounds	4	3	2
Case of Amber Comb Honey, 12 to 24 pounds	4	3	2
Display of samples of Extracted Honey, not less than half-pound each	5	3	2
Display of Extracted Honey....	20	15	10
Honey extracting on the grounds.	5	3	2
Frame of Comb Honey for extracting	5	3	2
Display of Canded Honey	20	15	10
Display of Beeswax	15	10	5
One Frame Observatory Hive Dark Italian Bees	4	3	2
One Frame Observatory Hive Golden Italian Bees	4	3	2
One Frame Observatory Hive Carniolan Bees	4	3	2
Honey Vinegar, one-half gallon, with recipe for making	4	3	2
Display of Designs in Honey..	15	12	8
Display of Designs in Beeswax.	20	12	8

TENNESSEE STATE FAIR, SEPT. 23 TO 24, AT NASHVILLE.

	1st.	2d.	3d.
Best 10 lbs. extracted honey...	\$10	\$5	\$3
Best display extracted honey...	15	10	5
Best case comb honey	10	7	3
Best display comb honey.....	15	10	5
Best display beeswax	5	2	1
Nucleus dark Italian bees	5	2	1
Nucleus golden Italian bees....	5	2	1
Nucleus Caucasian bees	5	2	1
Nucleus any other race bees....	5	2	1
Largest and best display of bees and bee-products, implements, etc., by individual exhibitor..	25	15	10

J. M. BUCHANAN,
Superintendent.
Franklin, Tenn.

Books for Bee-Keepers

Every bee-keeper should have a bee-book besides a bee-paper. On another page will be found all the best books offered—either at a price, postpaid, or as a premium. If you can not earn them as premiums for getting new subscriptions, it will pay you well to purchase one or more of them. You will find them of great value. There are so many things in the books that are needful to know, and that of course could not be told over and over again in the bee-papers. If a bee-keeper can afford only one, it would better be the book rather than the paper. But now that the American Bee Journal is only 50 cents a year, of course, no bee-keeper, however limited his apiary may be, can afford to be without its monthly visits.

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Conducted by EMMA M. WILSON, Marengo, Ill.

Bees Refusing to Work in Comb-Honey Supers

MISS WILSON:—I have just read in your department of the American Bee Journal the account of 2 colonies of very cross Italian bees that would not work in comb-honey supers, as related by Miss Elsie A. Cutter. I do not know that I can suggest any way to overcome the crossness complained of, except by the use of brimstone or a change of queens, but I think I can tell Miss Cutter how to get the bees at work, but not in comb-honey supers.

I had a very strong colony this season that refused to work in sections day after day, when other colonies of like strength were storing rapidly. I thought if they would not work in sections I would try to get them to work in something more to their liking, and so put on another hive-body filled with drawn combs. This seemed to take away all excuse for laziness, and the bees went immediately to work in this upper story.

If one does not want the home of the colony established in this upper story he can, after a few days, put an excluder between the two hives, taking care that the queen is in the lower one. It is better that the bees be at work even if they do not work just where one wants them to.

I note that Miss Cutter says she gave her bees extracting supers, and that the bees would not work in them. It would be of interest to me to know whether she put an excluder under the extracting super. It seems almost incredible to me that a strong colony in the midst of a good honey-flow, and with a brood-chamber full of brood and honey, should refuse to extend their work in an upper story full of empty combs, if there were no hindrance in the shape of a queen-excluder. If the excluder is kept on until brood is found in the upper combs, and then inserted it is most likely that the work will be continued above. If I had a colony that would not work under such circumstances, I would find the queen and cut off her head at the earliest opportunity, and give the colony another queen.

I will here remark that I have a high regard for the working qualities of hybrid bees. It is my practice to introduce a number of pure Italian queens into the apiary every year.

Leon, Iowa.

EDWIN BEVINS

Thank you, Mr. Bevins, for your suggestions. I think your plan would work in most cases; I would have said in all

cases, if Miss Cutter had not said that she failed to get them to work. Your plan is the same as the one used sometimes in our apiaries, with the exception that we put the excluder on at the time we put the upper story on, but we always place a frame of brood in the upper story to induce the bees to go to work at once. I think you will find that in that case the bees will go to work just as quickly, and it has the advantage of being all done at one operation.

I am inclined to think that the queen's head would come off in this locality if she could not be induced to work in sections.

Trained Nurse as Bee-Keeper

DEAR MISS WILSON:—Will I be intruding, if I ask you to send a thought in my direction?

My work for some years has been that of trained nurse, but with the advice of my physician, I am giving it up, and it is essential that I engage in some other line of work not quite so wearing on the nerves, and I have been considering and reading up a little on the bee-industry, thinking that possibly next spring I might engage in the work, if there is the least possibility of success. Will you kindly give me your opinion regarding this, and also the amount of money a beginner should invest?

ILLINOIS.

There is no question but bee-keeping is a splendid occupation for a nervous woman, but there are many things to be considered before advising to embark in bee-keeping as an occupation.

There are women, and women. Not every woman will make a success of bee-keeping. There must be a liking for the business. Of course, you can't tell until you have tried it. To make any considerable outlay until you have tried it would be reckless; best get 2 or 3 colonies to begin with. You can get a whole lot of experience out of 2 or 3 colonies, and a whole lot of fun besides, and gradually grow up into the business, making the bees pay their own expenses, which is much the better way of doing, for if you can't make a few colonies pay, you surely can not a large apiary. This may seem like a slow way of doing, but in time you will come to think it is the best way, as only a very small outlay is necessary to begin with, for a colony of bees can be bought at somewhere from \$5 to \$10. Besides this,

you should invest a dollar or so in a good text-book on bees and a bee-paper.

Some Swarming Experiences

I am quite prepared to agree with Dr. Miller, that swarming is not a very delightful experience, and I have been wrestling with it in great shape this summer. Now, don't anybody say, "That's your Carniolan's." I can't really see that they are bigger sinners than the others in this case, at least. But I have noted one thing: When you find a hive where the bees have refused to enter the sections—where every available spot in the brood-nest is crowded, and out they come—these are not Carniolans.

It seems to me as if everything in the yard, with one or two exceptions, was bound to swarm, and more than once, if allowed.

I read of Dr. Miller's piles, and gaily I reared a pile to see the bees pour out later, as it would seem by the bushel!

"A queen of the present season's rearing will rarely swarm," but they are at it none the less. It goes without saying that there is plenty of honey coming in.

While swarming in general does not delight me, there was a swarm today that did. I must tell you about it.

In the foreground of the picture may be seen a hive of peculiar shape and distinguished appearance, which I call "The White House." It is a hive con-



APIARY OF MRS. AMOS.

taining 10 closed-end frames, 10x12 inches in size. By all odds the bees ought to have wintered in that hive, but they did not last winter. It is the only hive now standing in my yard containing empty combs—at least, I might so have written yesterday. I have been intending to put bees in it rather late in the season. I did not want them in early as the hive lacks the tiering-up opportunity the others afford.

Now, mark what happened. A swarm was hived yesterday. Today I saw it sailing out again into space, and I thought, "Now that's to do over again."

Not much; those delightful bees only circled a few times and went pouring into the portico of the white house!

I said to myself, "I must have out a decoy or two right off. If bees will single out the only empty hive in the yard, and vote that it is a good place

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to live, it goes to show that there is not much that concerns them in their vicinage, of which they do not take cognizance."

MRS. A. L. AMOS.

Comstock, Neb., July 31.

Taste for Sweets an Index of Wholesomeness

It is gratifying to note that the sugar consumption of the United States has grown until it now equals that of England, which was heretofore regarded as the greatest sugar-consuming nation on earth; for nations may be rated by their taste for sweets. Latest statistics show that the sugar used in the United States and England is equal to 80 pounds a year for each man, woman and child in these two nations. Of course, the sugar employed in the manufacture of jams, preserves, confections, etc., aids in forming this average, but sugar is sugar, whether it is eaten raw, or in the coffee or in pies, or preserves, or in candy, and the average person of the United States and England eats more than twice as much sugar as any other person in the world. As against the American and Englishman's 80 pounds of sugar a year, the German eats but 33 pounds, the Austrian eats but 34 pounds, Russia 20 pounds, and Italy only 7 pounds.

Nothing could be said in greater praise of a people than that they have a taste for sweets. It shows a wholesome, vigorous, healthful condition,—an appetite not jaded from excessive indulgence. The child whose appetite has not become polluted or calloused from false relishes, smarting sauces and burning drinks, and dissipation, loves sweets; so does the girl of bright eyes and untainted youth, as is evinced by her fondness for ice-creams and desserts; the young athlete among men loves sweets, nearly as well as does the child.

The bar-room lounge, the beer-soaked twaddler, the tobacco-scented smoker of cigars and pipes, the cigarette fiend, the blear-eyed absinthe drinker and the red-nosed whisky drinker, the dope fiend and the depraved of all other classes do not like sweets. Long since their minds and appetites have lost the desire for everything pleasing to the natural palate. Among these people you will find the eaters of foul-smelling cheese, which the older and more rancid it is the better it is liked; the lovers of moldy sausage, of old, dried fishes, and of pickled eggs of fishes; of goose-livers, made vile by natural and artificial decomposition; of meats and fruits that are allowed to spoil before they are eaten. Such vulturine tastes dote on pate de foie-gras, caviar, salted mackerel, limburger and roqueford cheese, pickled olives, pickled anchovies and a hundred other vitiated foods, the viler they are the more they are esteemed. All other kinds of foods these appetites pollute with repugnant sauces, and they wash them down with fiery drinks, rated in esteem according to their age.

And from these causes, France, China, Russia, Spain, Austria, Germany and Italy laugh at the United States and

England and say that our foods are not fit to eat. England has been called the nation of a hundred dishes and one sauce. The Russian peace commissioners went back home and said the American foods were unspeakable. Some people base their aristocracy on the fact that they are able to eat caviar. These people all want something foul and rancid, something sour or bitter—never anything sweet, and the taste which enjoys sweets they call amateurish or barbaric.

The vulture is known by its habits as well as by its name, and people are of what they eat. A definition of the word sweet, therefore, may aid in the distinction of these nations. Here is one definition of the word:

"Having a certain agreeable taste or flavor, like or resembling that of honey or sugar—opposed to sour and bitter.

"Not changed from a sound or wholesome state; not stale; not sour; not putrescent or putrid."

"Mild, soft, gentle."

Then as people are what they eat, and as things that are equal to the same thing are equal to each other, we may make this deduction:

The people who like sweets are sweet of nature; they are agreeable and pleasing; they are not changed from a sound or wholesome state; not stale; not sour; not putrescent or putrid; they are mild, soft, gentle.

The people who do not like sweets are not sweet of nature. They are not agreeable nor pleasing; they have been changed from a sound and wholesome state; they are stale, sour; they are putrescent and putrid.

So let's rejoice in the fact that America and England eat twice the amount of sweets of any other nations in the world.

But let it not be understood that this

is an argument in favor of the unlimited eating of sweets. While the taste for sweets is a natural desire, there is danger in the excessive gratification of even natural desires. This truth is especially manifest in children's liking for candies, which often is productive of most serious consequences. When a people have lost a natural desire, altogether, and substitute therefor a desire that is unnatural, it betokens unwholesomeness and possible degeneracy.—What To Eat.

The foregoing article from the magazine *What To Eat* is well worth pondering over. It will probably be news to many a member of our circle to learn that she is using in her household 4 times as much sugar as her Russian sister, and 11 times as much as her sister under the sunny skies of Italy, and it will be some comfort to learn that this greater desire for sweets points to a more desirable condition of body and of mind.

It would be well if *What To Eat* would expand that last paragraph a little farther. More than one reason may be given for the "serious consequences" arising from the excessive gratification of children's liking for candies. Unwholesome—not to say absolutely poisonous—ingredients are too often to be found in candies. Let us hope the pure-food laws may help in this regard. Candies are eaten between meals, and the "picking habit" grows until many a child and many a young woman clogs the stomach before mealtime, and then fastidiously rejects the wholesome dishes at the regular meal. If honey were substituted at the regular meal, there would be less craving for candy, and on account of the more ready digestibility of honey as compared with sugar, little or no danger of any interference with the most robust health.



Conducted by J. L. BYER, Mount Joy, Ont.

Honey Crop and Prices for 1907

The honey crop committee of the Ontario Bee-Keepers' Association have issued the following report:

The honey crop committee of the Ontario Bee-Keepers' Association met in the Secretary's office, at Toronto, Friday, August 9, 1907. Over 100 reports from different parts of the Province, and a number from Quebec, were laid before them. Reports would indicate that a very great loss of bees has been sustained since last season, and that probably 50 percent perished during the winter and spring. The honey-flow

in a few localities is reported good or fair, others light, and in many nothing has been harvested—probably an average of less than one-third crop in all.

In view of these conditions, and the shortage of the fruit crop in all variations, and the higher prices prevailing, it is the opinion of the Committee that an advance over last season's rates should be reasonably expected, and suggest the following:

No. 1 light extracted honey, 11½c. to 12½c. per pound, wholesale; retail, 14c. to 15c.

No. 1 comb, \$2.50 to \$2.75 per dozen, wholesale.

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No. 2 comb, \$1.75 to \$2.25 per dozen, wholesale.

On the darker grades not yet harvested, a reasonable advance over last season's prices should be obtained.

H. G. SIBBALD,
WM. CROUSE,
W. J. CRAIG,
P. W. HODGETTS, Sec.

While the prices suggested, may, to some, seem a little high, yet when everything is taken into consideration, there is no good reason why they should be lower. Some have thought that foreign honey would be shipped in, but with the general shortage of the crop in the large producing centers, coupled with the 3 cents per pound duty, there is not much danger from that source.

"Mother Earth" for Cleaning "Bee"-Daubed Fingers

Strange how some of our notions are sometimes apt to "change without notice," quite suddenly.

When I first read Dr. Miller's plan of cleansing the fingers of honey by means of rubbing them with earth, I thought the method—well, rather *dirty*.

Last week it was my lot to examine a large apiary, and as the frames in the hives were spaced "any old way," with lots of honey along the top-bars and in burr-combs, my fingers were constantly being "stuck up." No water being near the yard, I was at a loss to know how to keep smoker, etc., free from honey, when I happened to think of the Doctor's plan. Say, it works like a charm, and a good many times during that day was a handful of dry earth called into use. To be sure, when doing any work by way of handling honey, etc., a basin of water is the proper thing, but in cases like the one mentioned, Mother Earth is par excellence. Doubters, try it, and be convinced.

Alfalfa Honey in Ontario

Frank Adams, of Brantford, Ontario, reports that this year, again, his bees did well on alfalfa. Reports like this are rare in Ontario, and in our own locality I have yet to see the first bee working on this plant.

Fair Season—Two Queens in a Hive, Etc.

FRIEND BYER:—The honey season has closed with a jolt in this locality. Bees have gathered only a fair surplus. Without an exception colonies headed with young queens did the best. A few of the best averaged 160 pounds each, and the rest all the way down to 25 pounds. Colonies that were considered weak in May gained up and did much better than those that were very strong. The latter swarmed in spite of all I could do, and thus cut down the surplus.

With the two-queens-in-a-hive system I had the following experience this season: In looking through a colony of Italians I discovered a young queen.

She was a worthless-looking little insect, so I killed her, and supposed that the old queen had previously been killed. There was an extracting super on this colony, and when I introduced a new Italian queen into it I lifted the super off and placed the cage between the top-bars of the brood-nest. I left the excluder off, and replaced the super. In 5 days I examined them again and found the old original queen with clipped wing in the brood-nest, and so concluded they had killed the new queen. Two days later I examined the extracting super and found the new queen had taken up her quarters there. I introduced the new queen later into a nucleus. The old queen is still living and doing good work, and I am wondering why they reared that young queen which I found in the first place. If they were trying to supersede the old queen why have they not tried it again? or do they only try that once in a season?

There was only enough basswood gathered to flavor the clover honey. I am feeding now to stimulate the queens. I have given up spring stimulating to a great extent, as I find that colonies strong with young bees in the fall do not require spring feeding. I have them strong to go into winter quarters by light feeding just after the flow.

The hint given in one of the bee-papers in regard to getting all-worker comb built from starters by weak colonies headed with a young queen, has been worth something to me. I made a number of 3-frame nuclei and gradually added frames of starters. Each colony drew out 7 frames of beautiful worker-comb. I did not feed them any, and they have abundance of honey. I tried the same thing with a weak colony with an old queen, and a fine frame of drone-comb was the result. I wish

I knew the *why* of some of those bee-pranks.

H. A. SMITH.

Palermo, Ont., August 5.

You may be thankful, Mr. Smith, in having secured a crop of honey this year. Only in a few localities are bee-keepers able to report even a "fair" surplus, and in our immediate section we have scarcely any honey. To make matters worse, the weather has been so very cool and dry that buckwheat is not yielding anything and prospects now are that we will have to feed more for winter stores than what we have taken from the bees.

As to your superseding experience, quite possibly that old queen will fail before next spring, even if she is doing all right now. About 4 weeks ago I found a colony headed with a queen of this year's rearing, making arrangements for superseding. I broke down the two cells started, and up to the present they have not tried to supersede again. But I shall take note of that colony and see if the queen does not fail in the near future. Past experience leads me to think, that such is likely to be the case.

Yes, weak colonies headed by young queens will do fine work, by way of building worker-combs from starters, but, as you intimate, it does not work that way when old queens are in the hives. However, I am a little doubtful if it pays not to use full sheets of foundation even in weak colonies, especially if the bee-keeper produces his own wax for foundation, and does not have it to buy. Unfortunately with us this year, except during fruit-bloom, foundation in any shape would not be touched by the bees, and the 40 nuclei I started were got into shape for winter only by giving them combs of brood and honey from the old colonies.



Different Methods of Liquefying Granulated Honey

BY G. C. GREINER.

Ever since I have been on the road selling honey, I have taken extra pains to inform and educate the honey-consuming public within my reach, in regard to the granulating process of all pure honey. But in spite of all my efforts along this line it is still the general belief that granulation indicates adulteration, and even those people, who know all about this natural change prefer to buy extracted honey in its liquid state. My endeavor to furnish such goods as the market calls for, has forced upon me a fair amount of experience in liquefying granulated honey, both in

retail glass packages and in the larger 60-pound tin cans.

Occasionally inquiries are made in regard to liquefying honey in glass jars. Well, here is what I know about it:

The most important feature of the operation is time—lots of time—but as little heat as possible. It is a job that can not be hurried, if we wish to retain the fine flavor of our honey. We must therefore take time by the fore-top, and begin in season.

After my honey is put up in glass cans, it begins to thicken, and look milky, as soon as colder weather sets in. This takes place, generally, during September, and, long before winter begins, every can, if let alone, would be as solid as a rock, figuratively speaking. But I don't give it the chance, if I

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can help it, for as soon as it begins to look milky, I begin to remelt it. It takes less heat, and it can be more quickly done at that time than later, after it has had time to become solid. This, too, seems to answer all the purpose, for it will generally remain liquid all through the winter after this one treatment.

We have over our kitchen stove a shelf that holds one dozen quart cans. With the common firing for family use honey placed on this will liquefy, ready for closing the can, in about 24 hours. It is very essential that every granule should be melted to prevent granulation a second time later on. I always unscrew the top of each can a very little when I expose the cans to the heat. This may not be necessary. Years ago I liquefied pound-bottles in the same way without removing the corks, and it seemed to work just as well. However, I think it is better to give the packages a chance to "breathe."

As long as I have liquid honey on hand to supply the market, I keep this shelf only occupied with cans, changing whenever necessary, but later on, when the markets begins to call more regularly for honey, the shelf is too slow. To keep ahead of my orders, I use a two-wick oil-stove with a sheet-iron oven. (See illustration.) The latter accommodates two dozen cans at a time, and with the blaze turned so low that the cans can be handled comfortably bare-handed at any time, two batches can be liquefied in a day. This gives me a liquefying capacity, including the dozen on the shelf, of 5 dozen a day, more than enough to keep me supplied.

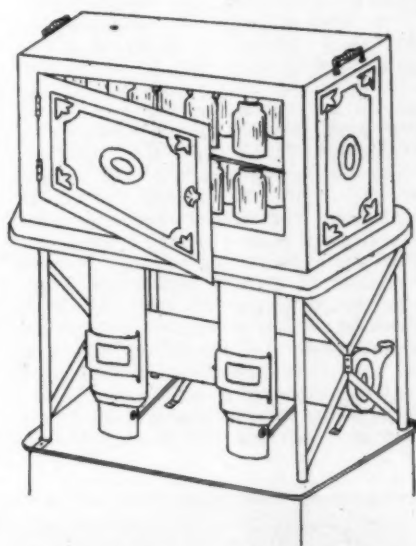
To liquefy 60-pound cans of honey is a very unpleasant job, the best we can make of it. They are too heavy to handle, with no chance, except the little wire loop, to get hold of them—they slip and slide like so much quick-silver. I aim not to have any 60-pound cans, or honey in still larger bulk, to liquefy. What I expect to sell in this shape is put up in these packages, but all the rest is put up in retail glass cans or tumblers at extracting time, or as soon as the honey is fit to be handled. But as we can not foretell the conditions of the season's trade, our plans and calculations do not always materialize just as we expect, and thus it happens that I have to liquefy more or less honey in 60-pound cans every fall or winter. In this case I resort to the hot water plan.

For the outside water receptacle I use the bottom-part of an uncapping can. This is a pan with square sides 10 inches deep. In the bottom of this I place a little wooden frame, and when the can to be liquefied is set on this, fill in the water. To supply the principle of "lots of time," the whole outfit is placed on the back part of the kitchen-stove a day or two before I intend to use the honey. As we use coal, and keep fire constantly day and night, the water is kept at about the right temperature all the time, so that when I am ready to do the putting up, the honey will flow readily from the can. If it is yet a little thick or milky at that time, I fill the jars just the same,

and let them have a turn in the little oven.

Formerly I always filled jars direct from the 60-pound cans, but of late years I have a better way. I empty them first into a large cream-pail—melting-pail, as I call it—holding about 85 pounds, which I had made for this purpose. It has a hoop of 1¼-inch band-iron soldered to the bottom to keep the latter from coming in direct contact with the stove, and at the same time prevent the honey-gate from striking, when the pail is sitting or sliding on the level surface. The advantages of an implement of this kind are several. When filling jars, honey should always be drawn from the bottom. It may be free from all impurities otherwise, but the melting process produces more or less foam, which rises to the top, and thereby improves the appearance of the honey drawn from below.

Another point is worth considering.



GREINER'S RELIQUEFYING APPARATUS.

It is much more convenient to fill small packages from a honey-gate than from the opening of a 60-pound can. With the latter, try as we may, occasional spilling and mussing is almost impossible to prevent.

In cases of necessity the slow process of waiting a day or two for a 60-pound can to melt, may not be just the thing. To save time, the matter can be hurried considerably without running any risk of injuring our honey. We will suppose that the depth of our hot-water receptacle is only about one-half the height of the can to be melted. It is not likely that many of us are the owners of a suitable implement that will admit of submerging a can clear out of sight. In the first place, the temperature of the water can be raised a little higher, say to about 120 or 125 degrees. This is a temperature that a person's hand can bear a short time, but it may become a little uncomfortable after awhile. In about 3 hours the lower or submerged part of the honey will be melted enough so that it can be turned into the melting-pail, after a hole has been drilled by means

of a long knife through the upper part of the yet granulated honey. This having been done, the second step would be to screw up the can and replace it bottom-side-up in the hot-water. If the water has been deep enough to submerge one-half of the can, it does not take as long to melt the remainder as it did the first part, because during the melting of the honey below, all the rest has been slightly warmed.

The operation can also be performed in a reverse order by first placing the can in the water, top down. Then it can be turned out whenever it is melted enough to run, without being obliged to open a way through the upper part of the honey. To facilitate the handling of the can it is advisable, as a makeshift, to wrap a small rope—a piece of a clothes-line will answer the purpose—two or three times around the can, and tie with the usual half-hitch. This will make a much better lifting device than the frail, little wire-loop of the can.

As soon as the first can be emptied, a second one can take its place in the hot water. After once started, no time need be wasted; the work connected with our retail-packages, such as washing, labeling, filling, sealing, etc., will occupy our time while the honey in the next can is melting.

La Salle, N. Y.

Outdoor Wintering of Bees

BY C. P. DADANT.

I have received the following questions for reply:

MR. DADANT:—I wish to try wintering a portion of my bees on the summer stands, and as I am informed that you do it successfully, I trust you will be kind enough to give me your method of preparation. I want to know what you use, and how you use it. Do you use a honey-board? If you use enamel-cloth, how do you maintain a bee-space between it and the tops of the frames? And what else do you use and how do you apply it?

Knox Co., Ill.

F. B. HAZLETT.

We do not use any honey-board on our hives at any time. In the spring and summer months we use a cloth over the top of the frames, or over the top super, and a straw-mat on top of this cloth. In winter we remove the cloth, which is usually impervious to moisture, and use the straw-mat directly over the frames of the brood-chamber. We have never tried to use any device for a bee-space at the top. Perhaps a bee-space would be best, and, in this case the Hill's device is as good as anything. It is kept for sale by nearly all the dealers.

The straw-mat is not used by many people, and yet we would not willingly do without it. It is warm in winter, cool in summer, flexible and not easily propolized, even when left over the frames in the busy season. But at this time, the bees fasten it to the top of the frames and it is soon torn to pieces. So we have always used a cloth during the working season.

Our purpose, in using the straw-mat for winter, is to have a cover which will retain the heat and still allow the moisture to escape. This may be secured in the same way by the use of old woolen carpets. Two or three thicknesses

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placed over the brood-chamber will absorb moisture while keeping the bees warm.

Some theorists on wintering bees have held that it is not necessary to have absorbents for moisture in the top of the hive, and that the bees will winter as well if the ceiling is absolutely air-tight. This is correct in ordinary winters—when the bees have a chance to fly once in every two or three weeks, or when an occasional day is sufficiently warm to allow the frost to thaw and the hive to become dry—but I have seen winters when the long, protracted cold weather caused such a large amount of moisture to accumulate in a hive where there was no upward escape for moisture or absorbents for this purpose, that the bees were practically soaked with the dampness produced by their own breath, accumulated during months of confinement. A ceiling which allows the moisture to pass into the cover, without permitting the escape of heat is positively the best for outdoor wintering. I believe that our successful cellar-wintering bee-keepers also approve of a slight amount of top ventilation or of absorbents, even in the cellar, though it is of less importance there.

Our method is to place forest leaves in the cap over the top of the straw-mat, but this is because we have the forest leaves handy in most of our apiaries. Anything else, such as chaff, woolen cushions, corn-cobs, or even dry shavings, will answer the same purpose. It is of some importance to have this material arranged so that it will not spill over the combs, when placing it or removing it.

As to the lower ventilation of the hive, it is of less importance. But if there is no top packing, a much larger amount of lower ventilation should be given, so that the moisture which may gather be enabled to escape or dry out. But with a good, warm packing above, only a small entrance-space need remain. Of course there should be no chance for mice to crawl in. They would disturb the bees much during cold weather, besides the ravages they might make in the unoccupied combs.

Weak colonies may be wintered on the summer stands, by covering them entirely with outside cases. An ordinary Langstroth hive could be covered with a dry-goods box. This keeps the bees much warmer than outside exposure. But the outside cover must be removed or thrown back in warm days so that the bees may be able to take flight. If they were confined during warm days, it would be fatal, as they worry a great deal when the weather is warm, if they cannot get out.

We aim to have our colonies as sheltered as possible on all sides, but the sunny side, and we want that to be the side of the entrance. So we try to face our hives as nearly south as possible, although a southeastern or southwestern exposure will do nearly as well.

When there is snow, we try to keep the bees quiet, especially if they have had a flight shortly before. But if the snow is thawing and the weather warm, it is better to let them fly, even if some are lost on the snow, than to

try to keep them confined. In very heavy snows, during the coldest months, we have often found colonies whose hives were entirely buried in the snow to go through all right. The only danger from the snow is, if it should thaw, and the water from it should afterwards freeze and close all the openings. When there are absorbents in the cap over a porous cover, there is air enough to be had through this to insure the bees against smothering. But when the snow melts, it should be cleared from the entrance and the alighting-board, for, if it is allowed to remain, it will make a large amount of water, and the bees will often get soaked in trying to go in or out. We want to see the entrance dry at all times when the bees are flying.

A good colony, of average strength, will usually produce enough warmth to thaw the snow at the entrance before the sun begins to act upon it. If the hive is slanting forward, as it should always be, it will not be difficult to clear the snow away and allow the water to run down and off the alighting-board, at the first rays of the sun, on any day when it is likely to be warm enough for the bees to fly. In cold weather, better let it alone.

As a matter of course, we must make sure, before winter, that our bees have enough stores for winter, and that the honey is of good quality. The ordinary amount considered necessary for wintering is 25 pounds. We would prefer 40 pounds, and in large hives we have nearer to this last quantity than to the first-named. If there is fruit-juice or honey-dew in the combs, it should be extracted. We have at times failed to comply with this requirement, but have always regretted it. It will always pay to remove fruit-juices, honey-dew or unsealed honey from the combs. The last, however, will not be injurious if the colony is not over-rich, as this unsealed honey will be consumed first. But we have seen winters, after extraordinary productive seasons, when unsealed honey at the lower edge of the outside combs remained late enough to absorb moisture and fill the cells to overflowing. This watery honey was death to the bees that consumed it during cold weather.

If the bees are in proper condition, a very ordinary colony will be able to withstand a very cold winter.

Hamilton, Ill.

Where Do the Field-Bees Deposit Their Loads?

BY G. M. DOOLITTLE.

Under the above heading, on page 614, the Editor finishes up his little "sermon" in a way pointing toward a "scrap" between Macdonald and Doolittle. Now Doolittle wants no battle with any one, and he would not step in to interfere with this Macdonald-York matter at all, were it not that Doolittle is apparently misunderstood by one or both of them. And in order that I may be the better understood I will simply give the readers a brief account of how I find things

along the line of this controversy, "and leave it to each of the two gentlemen to convince the other that he is mistaken."

Up to the honey-flow, I work as far as may be to get all the brood possible in the combs. With a really good queen, I succeed in having 8 out of the 10 frames (of Langstroth size) used in a hive, filled with brood, and the other 2 from half to three-fourths full. With queens not up to this "good" standard, some have 6 combs full, 2 others from half to two-thirds full, and the remaining 2 with no brood in. If any queen, having a fairly good chance, does not come up to this latter standard, the hive containing her is marked, and she is superseded as soon as the harvest is over, unless I find out the condition of things so that she can be more profitably superseded before the flow of nectar commences.

With the first standard, all of the 10 frames are allowed to remain in the hive when the supers are put on; but with the second standard, and all colonies not coming up to it, dummies are put in to take the place of all frames not having brood in them, and in this way each colony is compelled to labor in the sections according to the population they may have. In this the reader has one of the "kinks" Mr. Macdonald speaks about.

If all of the combs was left in the hive, where a colony did not have brood to an amount greater than 6 combs full, little or no section honey could be secured, for the first deposit of honey (*not nectar*) would go into the combs in the brood-chamber, and with this "start-out" the combs would contain the "bank account" and the sections little or nothing. But with only brood in the combs of the brood-chamber at the commencement of the honey harvest, the bank account is sure to be in the sections. Here I say "only brood." Mr. Macdonald quotes me as saying combs "literally filled with brood." Without taking time to look up the matter, I will say that I doubt not that he quotes me correctly, for, as the editorial hints, I am given to emphatic statements.

Now, just what do I mean by combs or frames containing only brood, or literally filled with brood? In general terms, just what is needed for the brood. I very much doubt whether a square foot of comb was ever seen not having a single cell in it unoccupied with brood. In other words, the best frames of brood will have, here and there, scattered about among the cells, one or more which do not have an egg, larva or pupa in them, while the average frame of brood, at the time of the commencement of the flow of nectar, will contain cells to the number of several hundred with pollen and thin honey, scattered all about among the brood, needed for the immediate demands of that brood, and the *every-day* use of the colony. This they must have. If they do not, no bank account will ever find the credit page for that colony, either in the combs or in the sections.

There is a great difference between a brood-nest and a brood-chamber. What I want you all to see is that, if we

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would secure the *very best* results, the brood-nest *must fill* the brood-chamber, and when such is the case that brood-chamber is literally filled with brood, or has in it *only* just what is necessary for the every-day wants of the brood. If the brood-chamber is *only* partly occupied with the brood-nest, at the time of the commencement of the honey harvest, then that honey *not* needed for the daily wants of the brood, which is brought in from the fields, goes into the part of the brood-chamber *not* occupied by the brood-nest, and thus the brood-chamber becomes the "bank" in which the surplus is deposited, and not the sections:

If we are working for extracted honey, and put on supers of empty comb, then there is little need of working so hard to have the brood-nest occupy the *whole* of the brood-chamber, for bees will enter a super filled with empty extracting combs and deposit their surplus there nearly, if not quite, as quickly as they will place the same in empty cells on the outside of the brood-nest. But to go into a super, all cut up into little section apartments, having separators for partitions, and comb foundation in each section, instead of empty comb, the case is altogether different, and we must work accordingly if we are to secure good results from our bees.

With this long preliminary, I come to the matter of "Where do the field-bees deposit their loads?" Surely, not in the cells of the combs, either in the brood-nest, brood-chamber or in the surplus apartment of the hive, if my observations count for anything. I have stood, sat, and lain by the side of an observation hive for minutes, and hours, till these will count into days, and I never yet saw a single bee coming in from the field with a load of nectar, deposit the same in the cells of the comb. The loaded field-bee seeks out a young bee—one less than 16 days old, or those which do the work inside of the hive, when a colony is in a normal condition—and the load of nectar is given to this inside worker, and the sac of this inside worker holds that nectar until it is sufficiently evaporated for depositing in the cells, unless more comes in from the fields than the sacs of the inside workers can contain. When this happens, then this thin nectar is deposited in the cells, generally in those scattered about amongst the brood, so far as they will hold it, as the nurse-bees use this thin nectar or honey in preparing the chyle for the larvæ. If the vacant cells in the brood-nest will not hold the surplus of nectar, above what the sacs of the inside workers can contain, then these inside workers deposit it anywhere that vacant cells, not containing evaporated nectar (or what has now become honey), can be found.

In an abundant yield from basswood, I have seen such nectar deposited in a comb left standing near the entrance of the hive on the outside, when on shaking the bees off this comb, the thin nectar would fly out of the cells the same as it will during a good flow from the brood-combs. And it is not necessary to have an observation hive to prove this

part of the matter. Just supersede a black queen with one of the golden Italians about a month before your expected flow of nectar, so that at the time of nectar you will have black field-bees and yellow inside workers, and you will see the black field-bees giving their loads of nectar to the golden young bees when they are on a comb you hold in your hands, just taken from the hive.

Now for another simple proof: At 10 a. m. look at the entrance of any hive where such an exchange of queens has been made from 28 to 36 days previously, and you will see only black bees coming in with loads of nectar. Now open the super of sections and look for black bees depositing their loads in the combs. Surely they will be doing this, if the old ideas of the bees working their way from the fields up through the crowded mass in the hive so they can deposit their loads in the supers, was correct; or that an entrance was needed in the super so that the field-bees could go direct to the sections to deposit their loads. But instead of finding black bees there, if the date be 36 days after the golden queen began to lay, you will find 9 out of every 10 bees in the sections are as yellow as gold, and all transparent from the loads of nectar from the basswood blossoms their honey-sacs contain.

Now, Messrs. Macdonald and York, I am not in this fight of yours. If either of you can get any good or comfort out of the above, or if the readers of the American Bee Journal get anything out of it which will be of benefit to them, I shall feel well paid for the part I have taken in the matter.

Borodino, N. Y.

Some Practical Don'ts for Bee-Keepers

BY E. W. ALEXANDER.

While we are so free to tell the inexperienced what they should do in order to succeed, would it not be well to remind them of some things they should *not* do?

INVENTING HIVES.

First, don't spend either time or money in trying to construct a new form of hive—not but that there are some serious faults in nearly all of our standard hives, but let the experienced bee-keeper remedy those faults.

MANAGEMENT OF WEAK COLONIES; HOW TO PREVENT ROBBING.

Don't allow your bees to acquire the habit of robbing. Hundreds of weak colonies are lost annually by this provoking habit which is frequently caused by the neglect of their owner. One of the worst features of taking bees from their winter quarters, a few at a time, is that it almost invariably starts robbing. The colonies that are taken out first, and have had their cleansing flight, being well located are in prime condition to attack every colony that is taken out later, and before they become located the bees from those that were taken out first have full swing at their

less fortunate neighbors. In order to prevent this costly and unpleasant state of things, where you have to set out your bees at different times, first contract the entrance of every colony; then as soon as you find a colony that is being robbed, even though it is only just started, close it up and keep it so for several days; then if they have any brood, set them on top of a strong colony with a queen-excluder between. If they have no brood, and still have a queen, give them a comb containing brood from some other colony.

In putting two colonies together in this way don't disturb either of them any more than you can help, especially the stronger one. If you keep a close watch on your apiary, and treat them as above described, you can save nearly all of your weak colonies with but little trouble, and at the same time prevent your apiary from getting into that demoralized condition which they frequently do when they find several weak colonies which they can over-power with but little loss of bees.

CAUTION AGAINST MAKING INCREASE TOO RAPIDLY.

Then the desire for more bees is almost sure to tempt the inexperienced to divide his colonies to that extent that they are almost worthless, either for surplus or to try to winter. So, don't make your increase too fast. If you do, you will not only lose your prospect of securing a fair surplus, but the chances are that you will lose many colonies during the following winter.

KEEP GOOD BEES AND PRODUCE GOOD HONEY.

Then don't be contented in keeping bees that are not good honey-gatherers. This is the principal thing we keep bees for; and if they fail to give us a good surplus when they should, supersede their queens with queens of a good honey-gathering strain.

Then don't produce poor-looking comb honey. You have no more excuse for producing poor stuff than the dairyman has for producing poor butter; but produce a quality that you will take pride in stamping on every package of it your name and address.

Don't set your bees in a place where they will annoy the public. Either keep them where they will not disturb any one, or sell them and go out of the business.

Don't allow drone-comb in any hive except one or two, and see that these hives have choice breeding queens. There is no more profit in keeping a colony of bees where a large percent of their combs is drone-comb than there would be in keeping a poultry yard of roosters.

Don't allow kingbirds, skunks, toads, and snakes to hang around your apiary. If you do they will weaken the working force of every colony.

Don't think that bees will give you good results in either increase or surplus honey if you neglect them and fail to do your part. The day is past when the word "luck" has any bearing on bee-keeping. The man who conducts his business in a careless, slipshod way, taking it for granted that this and that

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will come out all right, is only fooling himself; and the sooner he realizes it to be a fact, the better for all concerned. So, don't try anything of the kind, but look close to all the minor parts; and when you have united them into one fine method for practice you will be well rewarded for your study and perseverance.

Don't spend any time in worrying over the frequency of poor seasons, but spend your time in preparing your bees to make the most they can of any kind of season that comes, then you will be almost surprised to see how few poor seasons there are. We have not had a really poor season in 25 years, while some of my neighbors complain of a poor season nearly every summer.

SECOND-HAND HONEY-PACKAGES.

I almost beg of you not to buy second-hand packages to ship extracted honey in. I don't know when I ever read better advice than Mr. Muth gave us a short time ago on this subject. Don't use those poor packages. If you do, you not only bear down the market price of honey, but you indirectly raise the freight-rate.

Don't bother with starters of comb foundation in your breeding or extracting frames; but put in full sheets of foundation and prevent your bees from building that worst nuisance of the apiary—namely, drone-comb. The man with a few colonies may have time to fuss with starters; but if you have many hives to care for, the sooner you cut out this starter business, and the shifting around the apiary of brood, the better it will be for your net income. The earlier in the spring you can have every hive in your apiary, and every comb in those hives filled with worker-brood, then keep them so to the end of the season, the less reason you will have to worry about poor honey seasons and over-stocking. We have never had a strong colony of bees backed up with a hive full of worker-brood fail to give us a good surplus.

PREPARING FOR WINTER.

Don't neglect to prepare your bees early in the season for winter. This part of the business should here at the North be all finished before September 10. To a certain extent we are preparing our bees all summer for the next season; then when the final finish comes, the last of August, we have but little to do, and I am sure that they will winter with less loss if they have a chance to quiet down and are undisturbed during the fall months.

Don't try to winter weak colonies. If you are anxious to save all you can, then feed them syrup made from granulated sugar as soon as the harvest commences to close, so as to keep them breeding until they are strong in bees. If you attend to them in this way they will often be your best colonies in the spring; but if you can not do this you had better unite two or more together in the fall; for a weak colony in the fall is usually a dead one in the spring.

Don't try to winter a queen the third winter. I am sure it doesn't pay. She is almost sure to die, either in the winter or early spring; and if she lives

she is so slow to start brood in the spring that you will have a weak colony until mid-summer; and it will require more valuable time to build it up than three queens would cost.

Don't fail to keep your bees as warm and comfortable as is possible during the first four or five weeks after taking them from their winter quarters. We contract the entrances of all colonies to $\frac{3}{8}$ by 1 or 2 inches. In doing so it prevents robbing to quite an extent, and helps them to enlarge their brood-nest, which is very important at this season of the year. We also try to retain all the heat we can at the top of the hive. We put a piece of canvas first over the top of the frames, then a board under cover, cleated so as to form two dead-air spaces; then our outside telescope top, which is kept well painted so as to prevent any rain from entering the hive. You may think this is taking more pains than is necessary. We think it has much to do toward helping the bees to give us a nice surplus during the summer.

Don't put your bees into winter quarters that will subject them to unnatural conditions. If you do you will lose many colonies, both during the winter and spring. It is almost impossible to save a colony that has been poorly wintered. We may talk and write of the thousand and one different things connected with successful bee-keeping; but when they are all summed up the whole combined is not of as much importance as perfect wintering. We could make more money the following season from strong colonies when taken from their winter quarters if they were in nail-kegs than could be made from little, weak, sickly colonies in the best hive that was ever constructed.

I will close by saying, before I run off on the subject of wintering, that close attention to all things connected with your bees is the magic word that unlocks the door to success in bee-keeping.—Gleanings in Bee-Culture.

Feeding Bees Diluted Honey and Sugar Syrup for Winter Stores

TRANSLATED BY J. G. BAUMGAERTNER.

Coming across an article on some very interesting experiments along the lines of winter feeding with diluted honey and sugar syrup, by Mr. J. H. Clasen, of Wisconsin, in the *Acker und Gartenbau Zeitung*, I think it worth while to translate it for the benefit of the readers of the *American Bee Journal*. Mr. Clasen says:

"In writing this I am well aware of the opposition I shall arouse, for most apiarists consider this method of feeding bees as objectionable, and detrimental to the health of the bees. Yes, even more. Until recent years I have myself held the erroneous idea that such feeding was an impossibility, until I have been convinced by repeated tests, that this way of feeding is entirely harmless, and under certain circumstances even recommendable.

"In order to place my experiments and their results or failures plainly before my readers, I am obliged to reach back.

"About 16 years ago an old apiarist told me that in his home in Bohemia, many bee-keepers feed their light colonies in mid-winter by filling a wine-bottle with diluted honey, tying a coarse cloth over the mouth of the bottle, and inserting this bottle, mouth downward, into a hole in the top of the hive where the bees had access to it.

"This matter seemed worth a trial, and having 2 colonies in the apiary in a condition that made their ability to pull through doubtful, I soon proceeded to try on them this method of feeding. They both stood on the south side in an open house-apiary. I wrapped the bottles in cloth to protect them against freezing. The bees really took a part of the food, but as, in spite of the wrapping, it cooled off too rapidly, they could not take it all. Both colonies died the following spring from dysentery.

"A few years later I conducted another experiment. This time I made preparations for it in the fall, by cutting a hole about 3 inches in diameter in the honey-boards on the hives intended for the experiment. The circular blocks cut out of these boards I nailed on a 5x5-inch piece of board each, and replaced them in the opening. The bees soon closed the saw-kerf with propolis, leaving the honey-boards practically sound. The hives were now placed in protecting-cases, with chaff-packing, and a super put on the hive when the hood of the protecting-case was put on.

"That winter I used 1-quart Mason fruit-jars for feeding. I filled the jars with two parts of extracted honey and one part of warm water, tied a piece of coarse linen over the opening, inverted the jars, and set them in the holes in the honey-boards. I re-heated the food by wrapping a few hot bricks and placing them in the super around the jars. As near as I could judge, the bees were near starvation when the food was given, and they took it all down in 24 hours. But also the results of this experiment were no success, for in a few days the hive-entrance was almost clogged with dead bees. They were fed three times during the winter, and after every feed I found a number of sticky, dead bees on the bottom-board. The surviving bees in these colonies (I had fed several) came through the winter in a very weakened condition, and, in spring, showed signs of dysentery.

"Discouraged by the non-success of this experiment—from which I had anticipated good results with a high degree of certainty—I ceased all further experiments with liquefied food in outside-wintered colonies. And I believe, even now, that this method of feeding outside-wintered colonies is ill-applied.

"Still, I have reaped some benefits from these tests, for my attention has thereby been called to the convenient way of feeding bees by means of a jar, and I have since fed all my colonies with the above-mentioned hole cut in the honey-board. In performing the after imperative spring feeding, I simply set a jar of warm food (closed as above) inverted into the hole in the

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honey-board on the hive, and wrap an old cloth around it. In warm weather this is sufficient protection. However, if the weather is cool and windy, I put on a super and slip the hood down over it. In mild weather the bees take the food down in a few hours. I also use this method when feeding in the cellar, of which I shall now speak.

"A few years after my unsuccessful experiment, I read in foreign papers that bee-keepers water their bees in winter. I concluded that if that disturbance did not harm them (I erroneously thought that the cause of my failure was due to the disturbance of this feeding to the bees), no harm can come from adding some honey or sugar to the water, thus feeding the bees at the same time. I now have a well-equipped, dry bee-cellar, and had, in previous years, fed the cellared bees liquid food; but never before near spring and after a previous cleansing flight. I now concluded to try this feeding before a cleansing flight, in winter.

"For this purpose I took, in the fall of 1904, 3 colonies into the cellar, each having about 10 pounds of honey. On Feb. 1, 1905, I gave each of these colonies about a quart of a mixture consisting of two parts clover honey and one part water. The bees took this food in about 6 hours, and remained very quiet in the dark cellar. In 2 weeks this was repeated with the same results. About 3 weeks later I gave each colony about 2 quarts in 2-quart jars. This time it cooled before the bees had taken it all. After the jars were about half empty, I took them, heated the food, and then returned it to the bees, when in about 24 hours the last drop was taken out of the jars.

"On March 28, 1905, these bees were taken out of the cellar. They had brood in all stages, and no sign of dysentery noticeable. However, they had to be fed once more during spring. But they were the first of 91 colonies wintered, to cast swarms. One of these colonies swarmed on May 28—unusually early for this locality.

"Encouraged by these results, I purposely placed 16 light colonies in the cellar, in the fall of 1905. The amount of honey present in these colonies varied from 10 to 12 pounds. The first feed, consisting of 2 parts of white sugar and one part of water, was given them on Feb. 14, 1906. I gave each colony a quart of this mixture. In about 2 weeks another quart of sugar syrup was given each colony. This time 2 of the colonies refused to take the food, the remaining 14 colonies taking it in the usual way. About the middle of March the feeding was repeated, and at the end of March once more. In all, these 16 colonies were fed about 145 pounds of sugar syrup. Since about 1-3 was water, the cost of wintering the 16 colonies was about 6 pounds of sugar and 11 pounds of honey per colony.

"On April 2, 1906, these colonies were taken from the cellar. The two colonies which, after the first feeding, refused to take more food, were found very weak in number of bees, but the other 14 colonies were in excellent condition, and swarmed very early. Each

of these colonies was in every respect equal to any of the other 94 colonies wintered on combs of honey. Last fall, I placed several exceedingly light colonies in the cellar and began feeding very early. I shall report the success or failure next spring."

New Memphis, Ill.

The Cause of American Foul Brood

BY DR. G. F. WHITE, PH. D.,
Expert in Bacteriology.

For several reasons much confusion exists as to the present status of our knowledge of bee-diseases. It is hoped that this circular will give information which will to some extent clear up the subject of American foul brood from a bacteriological point of view. The symptoms of this disease are given in Circular No. 79 of the Bureau of Entomology, entitled, "The Brood Diseases of Bees." American foul brood is the prevalent disease in America, and, judging from reports received from Europe and from descriptions in European bee-journals and books, it is the prevalent one there. There is another diseased condition, which Cheyne examined, and to which we now refer as "European foul brood."

When the author began his work on bee-diseases, in the summer of 1902, he observed, in combs containing American foul brood, in the dried remains of the dead larvæ, known as the scales, a very large number of spores which failed to grow when inoculated into the media ordinarily used in the laboratory. It was clear, then, that these spores are not *Bacillus alvei*, and that this disease is not the "foul brood" of Cheshire and Cheyne. The following year the study was continued and a medium was devised in which the spores found in this disease will germinate. This medium consists of an agar made by following the directions ordinarily used in the laboratory, with the exception that bee-larvæ are substituted for meat. By the use of this medium were obtained pure cultures of the micro-organism which is found so abundantly, in the form of spores, in the dried scales of American foul brood.

In reporting these findings the author referred to this organism as "*Bacillus X*." Further study was subsequently made, and the species was given the permanent name *Bacillus larvæ*. The description of this species may be found in Technical Series No. 14 of this Bureau. In his publications the author has made no claim that *Bacillus larvæ* is the cause of American foul brood, but has made the statement that it is found to be present in all the samples of this disease which have been examined by him. No inoculation experiments were made, for the reason that sufficient cultures in suitable condition could not be obtained from any medium then known.

Since the media used in former investigations are not suitable for obtaining cultures for purposes of inoculation, in taking up the further study

it has been necessary to devise a medium which would be satisfactory in this respect. Such a medium has been discovered, and large amounts of the culture suitable for experimental inoculations have been obtained. This medium is prepared and used as follows: Healthy bee-larvæ or young pupæ are picked from the comb, crushed, strained through cheese-cloth, diluted with 20 to 50 times their volume of water, filtered through ordinary filter-paper, and then passed through an earthenware filter (the Berkefeld filter is satisfactory) to remove any bacteria which are present. The sterile filtrate thus obtained may be filtered into tubes or flasks and stored until needed. When *Bacillus larvæ* is to be isolated, a tube of the ordinary agar of the laboratory is liquefied and cooled to 45° or 50° C. Then about c.c. of the filtrate mentioned above is added to it. A very small amount of the decaying larvæ affected with American foul brood is then added. The procedure from this point is as usual in making agar plate cultures; these plates are afterward incubated. When a large amount of culture is desired for experimental purposes it is convenient to use the ordinary agar medium in large test-tubes to which has been added, as above, about 2 c.c. of the sterile larvæ filtrate. These agar tubes are then inclined and the surface of the congealed agar is inoculated. In no case should the larvæ or filtrate reach a high temperature. The object, of course, is to obtain a medium which contains the food constituents which are afforded the bacteria in the living larvæ.

Inoculation experiments have been made by feeding to a healthy colony the scales from combs which had contained brood affected with American foul brood. The result of the feeding was that the colony became affected by disease, the symptoms of which were the same as those observed in the apiary where American foul brood is found. Like symptoms have been produced by feeding scales which had been put into ordinary meat bouillon, incubated for twenty-four hours, and then heated to 65° C. for twenty minutes.

On microscopic examination of the decaying larvæ dead from the disease thus produced experimentally, the same large number of spores and rods are seen as when samples are examined which are taken from an apiary affected with American foul brood. From these dead larvæ pure cultures of *Bacillus larvæ* were obtained from plates, using These experiments show that by the feeding method the disease may be produced and that the contagion is found in the scales. The second experiment tends to indicate the cause of American foul brood as found in the scales is not killed by heat at 65° C. applied for twenty minutes.

Up to the present time there is no authentic record of this disease having been produced by experimental inoculations of pure cultures.

Knowing that by the feeding method the disease may be produced, pure cultures of *Bacillus larvæ* have been mixed with sterile sugar syrup and fed to healthy colonies with the result that

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the disease appeared in the colonies within 3 weeks with symptoms identical with those produced by feeding the scales of the disease. In the ropy brown mass of the decaying larvæ in the disease which is produced experimentally by feeding pure cultures of *Bacillus larvæ* there are found the same large number of spores and rods as when the disease is found in an apiary. Pure cultures of *Bacillus larvæ* have been obtained from the larvæ dead from the disease produced experimentally by feeding pure cultures of *Bacillus larvæ*.

Some European investigators of brood diseases omit the symptoms so that it is impossible to tell which disease they are investigating. Their descriptions of micro-organisms also are entirely too brief. These facts have led to much confusion, and they necessitate much additional work on the part of other investigators. They have also added to the present confusion. From what can be gained from their papers, the author is inclined to believe that Burri has been working with *Bacillus larvæ* and has been referring to it as the "bacillus difficult of cultivation;" that Maassen has been working with *Bacillus larvæ* and has been referring to it as *Bacillus brandenburgensis*, and that von Buttel-Reepen has referred to *Bacillus larvæ* as "*B. burri*." It is hoped that this confusion may soon cease to exist.

In the study of *Bacillus larvæ* on this new medium some interesting additional facts have been observed in the morphology and cultural characters of this organism which will be given in a bulletin from this Bureau in the near future. One fact is mentioned now because it seems to have caused one German investigator, Dr. Albert Maassen, to fall into error in the interpretation of certain findings. This fact is that this species, *Bacillus larvæ*, produces a large number of giant whips. (Giant whips are at present believed to be in some way a modification of flagella, the motile organs of bacteria.) These giant whips appear in pure cultures of *Bacillus larvæ* and persist there for a long time. The structures which Maassen evidently saw and reported in two different publications, naming them *Spirochaeta apis*, are nothing other than giant whips which normally belong to *Bacillus larvæ* and which are formed by the growth of *Bacillus larvæ* in the larvæ of the bee.

Maassen seems to have no further evidence that the structures which he saw are spirochaetes than what could be gained by a microscopic examination of the remains of the dead larvæ which had suffered from this disease. The appearance which he interprets as a spirochaete in the process of division can be seen in the giant whips obtained from pure cultures of *Bacillus larvæ*. These giant whips are found in the decaying larvæ which are dead from American foul brood experimentally produced by feeding pure cultures of *Bacillus larvæ*.

The author has observed these structures in a large number of examinations of American foul brood, especially in

the hanging-drop preparations made directly from the dead larvæ. There is nothing else contained in the dead larvæ which can be seen that resembles a spirochaete, and since Maassen made no mention of the giant whips found there so abundantly, it is quite certain that he has made this mistake.

This preliminary note will be followed by a bulletin which will contain in full the results of recent investigations by others on the brood disease of bees and a detailed account of the work done here.

The results may be summarized as follows:

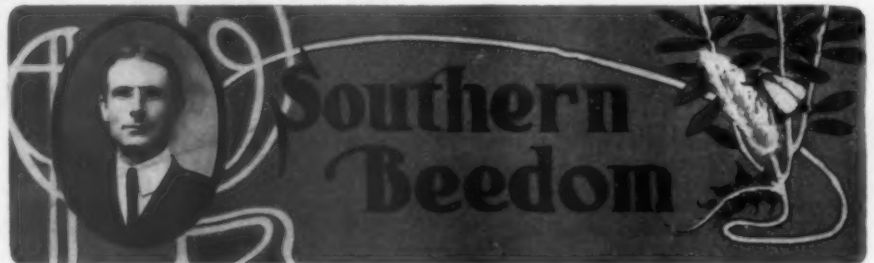
(1) In previous publications the author has made no claim that *Bacillus larvæ* is the cause of American foul brood.

(2) A medium has been devised by which cultures of *Bacillus larvæ* may

be obtained in large quantities suitable for experimental inoculation. This medium consists of the sterile filtrate obtained by diluting and filtering the crushed bodies of bee-larvæ through a Berkefeld or other fine filter.

(3) American foul brood has been produced by feeding pure cultures of *Bacillus larvæ*, and the symptoms of the disease are the same as those produced by feeding the scales of this disease and as those observed in the apiary where colonies are affected with this disease.

(4) The structures described by Doctor Maassen, of Dahlem, Germany, as spirochaetes and named by him *Spirochaeta apis* are not spirochaetes, but normal structures produced by the growth of *Bacillus larvæ*. These are known in bacteriology as giant whips. Washington, D. C.



Conducted by LOUIS H. SCHOLL, New Braunfels, Tex.

Shallow Divisible Hives—What Depth Should They Be?

Mr. LOUIS H. SCHOLL:—I have been interested in your mention of the divisible-brood-chamber hive. I have used principally the 8-frame dovetail for an extracted-honey hive, and like it quite well. But for a few years I have used some hives that were the same size except that they are just 7 inches deep. I like them, and think of putting in an entire apiary in that size of hive. One or two of them make a good winter hive, and in the honey season I would tier up as far as necessary. I think the bees ripen a super of these combs so that only ripe honey will come from them better than they will supers of greater depth. I would like to know what objection you would have to this depth in comparison with the one you are using?

I hope to get out to Texas some day to see the country, but it is so big I fear I would not get over much of it.

Referring to the above, I think of using Hoffman style of frame, closed-end only 2 or 2½ inches. What would you recommend?

HARRY LATHROP.

Bridgeport, Wis., May 16.

Localities differ! So do bee-keepers! Yet, I do not think that locality makes much difference with some kinds of hives, as some are more adapted to all kinds of localities than are others.

The right kind of management must go with the hive, however. Do not try to handle shallow, divisible, brood-chamber hives like you would a deep-frame hive. Leave the handling of combs behind, and handle the shallow chambers.

The combs need hardly ever be handled except when the honey is to come out of them in the extracting house. You would not handle sections individually, and brush off the bees in the apiary, but take off by supers full.

The 9-inch depth hive is too deep for me to accomplish just what I want. I have tried it, and the Danzenbaker and Acme hives. It is very rarely that I use only one section, (as I call all of my shallow hive-bodies), for a brood-nest, except once in a while for hiving shaken swarms; but even then an empty one is placed beneath it and soon becomes half of the brood-chamber proper. Two or more sections are always used throughout the greater part of the entire season, and for the majority of my colonies. The bees generally winter in 3 sections, the upper one containing honey.

The Ideal sections I use for my hives are the regular shallow extracting supers on the market, with shallow 5¼-inch deep Hoffman frames, V-edge end-bars, the kind I would recommend after trying all kinds of frames thoroughly. The only trouble with these regular-style frames is that the top-bars are too wide. I am using and prefer one only ⅞-inch wide and ½-inch thick, full, and no groove for inserting foundation, as this only weakens the top-bars. The groove is not needed for fastening foundation, especially since our frames are used again and again in bulk comb-honey production, after the comb has been cut out. This should cheapen the frames all around, as they are easier to make than those put out now. I shall have several thousand more made this fall.

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Such a depth frame will take regular-sized sheets of super-foundation to fill them, and saves bothering about odd-sized foundation often causing much worry. In fact, our idea should be to have everything of standard size, so that we can get it whenever and from wherever we want it.

The 10-frame hive is to be preferred for all localities in the South, and I would use the 10-frame divisible brood-chamber hives in the North, for these can be made into the largest hives, or contraction can be practised at will, and better results obtained than with an 8-frame hive. Two of the sections for a brood-chamber, as I am using them, are just the same size as the Dadant hive, or the Draper or Jumbo barns. The advantage over these I claim to have, is that I can manipulate my brood-chambers and accomplish results that can not be obtained with deep-frame hives.

Two of the sections make an ideal shaped hive for winter, deeper than the Langstroth. As spring advances and honey comes in freely from fruit and other bloom, room is given, *not on top*, causing the bees to clog the brood-nest, but a section of empty combs is slipped in between the lower and upper sections of the brood-chamber, thus moving the upper one, already partly filled with honey, to the top as the super. Here it is completely filled later, and the bees remodel their brood-nest in the two lower sections.

If this is done just preceding the swarming period it will knock swarming in the head to a greater extent than anything else I have been able to find. The secret is to break up the solid mass and crowded condition of the brood-nest, and I know of no better and easier way than simply to slip a section of empty combs between the two halves of the brood-nest. It provides laying-room for the queen, and room for the bees, and you have stronger colonies instead of swarms.

And when the early white honey-flow comes the brood-nest is in an ideal condition for it—free from honey, which has gone up into the super, and filled with brood. Now, the comb-honey super with foundation is given—*not on top*, but again in between that ideal brood-chamber and the full, shallow extracting super. The bees are used to storing above, there's no honey in the upper part of the brood-combs, and you had provided breeding room for a strong colony for this flow. So what happens but that the bees go to work immediately, and with a vim not possessed by colonies treated in the old way? And is there any better way to accomplish this? Can it be done so satisfactorily and easily with any of the deep-frame hives? I can not do it.

Yes, and when removing honey, more all-ripe honey can be removed sooner, and a better quality can be produced, especially of bulk comb honey, as much thinner foundation can be used in full sheets, or if starters are used, less drone-comb is built, which is very "gobby" in comb honey. For extracting combs I prefer them. They are easier to free from bees, easier to uncup, and

two of them go into the 11-inch baskets of the extractor.

After reading my manipulations thus far, you will readily see that anything deeper than my sections would be too deep. There's too little difference between the 7-inch and the Langstroth. A 10-frame 7-inch section would be too heavy for one when full; too deep for me, as, in the majority of cases, it would be too much room to give at one time to obtain best results, especially for slipping between the sections of the brood-chambers in spring.

Then, a 7-inch extracting super left on top would take too much honey to fill before the white honey-flow before the bees work in the comb-honey supers. And, again, two of the sections then comprising the brood-chamber would be too deep, and much of the white honey would go into the upper brood-combs.

There are other reasons why I prefer the shallower hives.

The Death of L. Stachelhausen

Through the death of Mr. L. von Stachelhausen, the bee-keepers of Texas, and of the entire bee-keeping world, have sustained an irreparable loss, and never before have the Texas bee-keepers mourned a greater loss. Mr. Stachelhausen had a world-wide reputation among bee-keepers, not only contributing much to the literature on bee-culture of this land, but in Europe also.



L. STACHELHAUSEN.

His loss will be felt there as much as here in our own country.

Ever ready to impart information, and to lend assistance to further his beloved pursuit—apiculture—he gained the friendship of all who knew him. He was ever an active member of the Texas Bee-Keepers' Association, and its members feel greatly the loss of a fellow bee-keeper and a friend from their midst.

At the last meeting, in July, at College Station, a half-hour memorial service on the forenoon of Wednesday, the 24th, was held by the convention in commemoration of his death and his departure from among those who held

him in their highest esteem. He was praised and honored by all who knew him, and the following resolutions were adopted:

"WHEREFORE, It has come to the knowledge of our Association that our beloved friend and brother bee-keeper, L. Stachelhausen, has very recently been removed by death from our midst, we deem it the bounden duty of this Association to make some fitting memorial; therefore, be it

Resolved, That we, the Texas bee-keepers in convention assembled, bewail the loss of our esteemed, brilliant and honored member, and while we deem it an irreparable loss to the Texas bee-keepers, as well as to the bee-keeping world, we bow our heads in humble submission to the will of the Great Ruler of the Universe, who doeth all things well.

We would luminate the life of our deceased brother in that he lived a life of honor, usefulness and sobriety; that he was a lover of the cause and calling he had espoused; that he lived a life of devotion wholly for the good of others. It was always his pleasure to attend our meetings, and today we miss his kindly face, we fail to hear his cheerful words, and a vacant chair stands among us. It is also

Resolved, That a copy of this resolution be spread upon a page of our minutes and that that page be bordered in black; and that a copy of it be also sent to the bereaved family, and to the various bee-papers for publication.

Respectfully submitted,
LOUIS H. SCHOLL,
W. H. LAWS,
C. S. PHILLIPS,
Memorial Committee.

How Does the Queen Fertilize the Eggs?

This question has not yet been answered. It has been held that compression on the queen's abdomen in the act of laying will cause fertilized eggs to be laid, but I do not believe that there is anything in it. There are several reasons for this. First, when a queen lays in newly-built comb with cells only $\frac{1}{8}$ -inch deep, there can, of course, be none of that so-much-talked-about compression of the abdomen. Neither is there such when eggs are laid in queen-cells, most of which are very wide-mouthed and shallow when the egg is deposited in them.

In a recent issue it was hinted editorially that perhaps the depth of the cell has something to do with the position of the queen when laying. It was thought that there may be something in this as regards the difference in depth of drone-cells and worker, the latter being shallower than drone-cells. As the writer had never seen that eggs were laid in shallow drone-cells or before they were fully drawn out it might be true.

But, are not, in most cases at least, the cells of a comb all of about the same depth as long as they do not yet contain brood, the drone-cells being later drawn out longer than the worker

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when the brood is capped? Then, too, I have seen eggs laid in drone-cells considerably shallower than the worker-cells on the same comb; the drone-comb being in batches at the lower corners where the comb is generally more or less rounded off.

And, again, I have seen eggs in newly-built drone-comb with cells only $\frac{1}{4}$ -inch

deep, and the cells were only later drawn out full-depth. Anybody can try this during early summer, when the queens are anxious to lay drone-eggs, by simply giving an empty frame in the brood-nest.

And all this goes against the "compression of the abdomen" theory, and that of the different depths of the cells.



POISON FOR MICE.

Strychnine is extremely bitter, and mice or rats are not fond of it. The following has proved very useful with me: Take one part flour, one part sugar, and one part arsenic: mix thoroughly, and place in hives or where the mice pass, and they will disappear very fast.—J. E. CRANE, in *Gleanings*.

VIRGIN QUEENS DO NOT ALWAYS FIGHT.

Editor Root gives an exception to the rule, perhaps first one on record. He says in *Gleanings*:

"Not six weeks ago we found in one hive nearly a dozen virgins on one frame, living peaceably together. It was a case where a lot of cells had been given to the colony to complete, and they had hatched before the apiarist got around to them. Some of the queens were from 2 to 3 days old, and yet there they were all together like a happy family."

CLOSING ENTRANCE WHEN MOVING BEES.

When moving bees, cut a strip of burlap 2 or 3 inches wide, the length of the entrance to your hive for each colony, and when ready to close them, leave these pieces in a pail of water. Crowd one into each entrance with a jack-knife; better than sticks, screen or anything I ever used. No hammering to disturb the bees, and the moisture tends to quiet them, as well as being much the quickest way. Try it.—*American Bee-Keeper*.

TARRED FELT NOT ALWAYS DESIRABLE.

S. D. Chapman found it an actual detriment, the bees being warmed up by the dark color, and flying out on days when it was so cold that they were lost. In the *Bee-Keeper's Review*, Editor Hutchinson comments:

"If the location is exposed and windy, I can see that the results might possibly be like those reported by Mr. Chapman, but in the sheltered locations where my brother and myself have used this kind of protection we have always found it a decided advantage."

ROASTING OUT WAX-WORMS.

Combs infested with larvæ of the wax-moth are set out in the sun against some obstacle so that there are no sheltered parts under which the "worms"

may hide from the sun. Then watch them "hike out," and the sun gets them, leaving the combs free of the pest. Don't leave the combs out too long or in too hot a sun or they will melt. Hundreds of combs have thus been "disinfected" in this way in our yards.—LOUIS H. SCHOLL, in *Gleanings*.

SHAKEN SWARMS.

Under this title, F. Greiner, in the *American Bee-Keeper*, gives an excellent summing up of points, among which are the following:

Some bee-keepers brush all bees from the brood-combs and place the beeless combs on top of other colonies; some leave bees enough on the combs to take care of the brood, and thus form a new colony, giving the motherless family either a queen or a ripe cell; which latter answers just as well. Some bee-keepers give the brushed bees a little brood to hold them.

All authorities on shaken swarms agree that the bees ought to be made to fill themselves with honey before they are shaken or brushed from their combs.

After a swarm is shaken, dissatisfaction sometimes arises among the masses, possibly also among the royalty, although I don't think that occurs. I think the queens are subject to the workers and must go if they so decide. When the masses become dissatisfied with the conditions as the bee-master (?) has arranged matters, they just pull out. They seem to think that they can lose nothing, so there they go. If the queen is able to fly, and nothing else hinders her following the bees, our hive will be found empty of bees when next we make them a visit. They may swarm out after 3 or 4 days. I hardly consider the same safe before the seventh day. When the queen is clipped, of course she cannot go with the bees. After sailing around they decide to come back, for really they have no other place to go. The queen crawling about in front of the hive enters it also when the bees return.

I have watched many swarms with clipped queens, and I never saw one go astray. Hives, however, must not stand close together, and the alighting-board to each must reach the ground; otherwise there would probably be trouble.

PREVENTION OF SWARMING.

E. F. Atwater gives in *The Bee-keepers' Review*, the Rauchfuss or Aikin plan of preventing swarming, which Mr. Rauchfuss says will give more honey than any other plan—at least for arid belt conditions—the chief fault that Mr. Atwater finds with the plan being that sometimes a colony is left hopelessly queenless by the failure of the virgin to return safely from her wedding trip. He says:

"Put most of the brood in the lower story of the hive, on this a queen-excluder, on this a second story, with one frame of bees, brood and the queen, the balance of the combs empty or containing some honey.

"Brood-rearing will leap ahead in this upper story, receiving the heat from the mass of brood and bees below. The bees can't swarm, as the queen can not pass the excluder. Nine or ten days later, set the upper story containing queen, bees and new brood, off to a new stand. The hive on the old stand now contains only sealed brood. Destroy the queen-cells, if any, give a ripe queen-cell, or run in a virgin queen, and put on the supers. The bees will not swarm, as they have no eggs or larvæ from which to start queen-cells.

"As soon as the young queen begins to lay, the honey will go up into the supers in a rush. For some conditions the method may be better than forced swarming as usually practiced; for the hatching brood reinforces the field-force for about 10 or 12 days after the old queen and her hive of new brood is removed to a new stand."

VALUE OF PROTECTIVE SURROUNDINGS.

Over at Port Huron, where I met my Waterloo last spring, there was a sheltered nook at one corner of the yard. The wagon-shed, the barn, a high board-fence, and one or two big apple-trees, all combined to shut off the cold north or west winds. Scarcely a colony perished in that sheltered nook; and even of those that lived, not one was as strong, when I moved them away, as were most of the colonies in the sheltered corner of the yard. Away out in the field, beyond the influence of this shelter, scarcely a colony was left alive, and those were weaklings. It seems strange that some of us are so long in learning the true value of outside protection in the winter and spring.—*Bee-Keeper's Review*, p. 200.

STRENGTHENING WEAK COLONIES.

The Alexander plan of putting weak colonies over an excluder on a strong colony in spring seems to be gaining in favor. It appears that if the two colonies are stirred up at the time of putting together, the bees of the stronger colony kill the upper queen. To avoid this some allow a wire-cloth between the colonies for about 2 days, thus allowing them to gain the same scent before the bees from below can get above. Others gain the point by doing everything so quietly that the bees of the two colonies are not likely to get together for some little time.

The Canadian Bee Journal reports.

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page 208, that E. P. Adams "says he was at first disappointed with the plan, and had stated so, as the queen in the weaker colony was almost invariably killed and the 2 colonies merged into one below. He has since found, however, that the lower colony must be really a strong one; it does not matter much how weak the upper one may be, so long as it has a laying queen. He puts them together in the evening, or toward evening, when they have about ceased to fly, and with-


out using smoke or jarring them at all. To assist in this he makes all possible preparation early in the day, placing the queen-excluder on the top of the strong colony, leaving off the cover, etc. He is also careful that the weaker colony is in proper shape, the hive-body made loose on the bottom-board, and all ready to be lifted and placed on the top of the other. He says that these points all go toward the success of the plan, and that he is highly pleased with the results.

given, and then they are likely to be all right.

3. I would rather have it daily, and would be willing to give as much for a good daily bee-paper as I give for a daily newspaper—yes, more. But there are not enough who would be willing to pay a fair price for a daily bee-paper, and so no publisher could in all probability afford to publish it. And I suppose the publishers thought the number who want a weekly bee-paper is very small compared with those who want it monthly, so you and I must be satisfied with it one-fourth as often. But the American Bee Journal costs so little now that we can afford to take another bee-paper or two besides.

4. That depends altogether upon circumstances. In a very poor year once is too often, unless one is careful to feed well, and no feeding is quite so good, either, as getting the natural stores from the flowers. In an extra-good season you might divided a colony as soon as the flow began, and each part might be ready to be divided again in a month, perhaps in less time, and that might be kept up if the flow should keep up.



Send Questions either to the office of the American Bee Journal, or to
DR. C. C. MILLER, Marengo, Ill. 
Dr. Miller does not answer Questions by mail.

Late Swarms

1. Why don't my bees swarm? If they have swarmed we don't know it. They were very weak when we put them out in the spring. They come out once a day and have their "play," as I call it, but go back in again.

2. Would they need to be fed if they swarmed now, or would they gather honey enough for themselves?

MINNESOTA.

ANSWERS.—As you say, they were weak, it may be that is sufficient reason for their not swarming. It is possible that the poor season may have something to do with it. It also may happen that a strong colony in a good season may be good enough not to swarm. A number of my colonies make no offer to swarm each year, and I wish they were all of like mind. My biggest yields come from these non-swarming colonies.

2. If there is a good fall flow they ought to get their winter stores; otherwise not. In any case it is good practise to feed when a swarm is first hived. If bad weather should happen at the time, it would be a setback without such feeding.

Too Many Drones

1. I bought a colony of bees last spring, and there are now about as many drones as worker-bees. We would like to know how to get rid of the drones.

2. How can we prevent so many drones being reared?

SOUTH DAKOTA.

ANSWERS.—1. Excluder-zinc in some form will help out. If you have not a regular drone-trap, use enough excluder-zinc to close the entrance at a time of day when the drones are flying out. Then in the evening you can easily catch them, feed them to the chickens,

or dispose of them in any way you like.

2. The easiest way to prevent a large number of drones is not to have much drone-comb in the hive. To make sure against it, a great many think it best to have frames filled with worker-foundation, thus securing worker-combs in all the frames. If you have frames largely filled with drone-comb, supply their places with better. If there are patches of drone-comb, cut out and fill the holes with worker-comb or worker-foundation. You may also slice the heads off sealed drone-brood, or sprinkle salt or salt-water on the unsealed brood.

If the drones are as numerous as you indicate, I'm afraid it may be a case of laying workers. See if the sealing of worker-cells, instead of being flat, is raised like little marbles. If so, it is a case of laying-workers, and the best thing is to break up the colony.

Few Drones—Dividing Colonies

1. My bees have had no drones to speak of this season, except on 2 or 3 days, when I saw 4 or 5 flying from 2 of the hives, and the bees killed them right away. What was the cause?

2. Will bees do all right if put in a nucleus without any queen?

3. I think I would rather have the American Bee Journal every week than to have it monthly.

4. How often can I divide a colony of bees and have them do well?

NEBRASKA.

ANSWERS.—1. The absence of drones may be due to the poorness of the season. Keeping drones is a sort of luxury that bees indulge in when they are prosperous, and when forage is scarce they do not feel they can afford it.

2. No. They would, to be sure, rear a queen, and in time build up into a full colony, but a queen started in a nucleus would be likely to be a poor one. They should at least have a sealed queen-cell

Moths In Hives

How can I get rid of moths in my beehives? The bees are not working well, for the moths bother them.

WASHINGTON.

ANSWER.—There is no cure for moths better than bees. A strong colony is not likely to be bothered with them, whereas a weak one, especially if it has a lot of combs more than it can cover, will have lots of trouble. But there is a big difference in the kind of bees. A weak colony of Italians will keep off the moth where blacks would succumb. Hybrids are nearly, if not quite, as good as Italians. So if you get in some good Italian blood, your trouble will probably disappear.

Bees Hanging Under Brood-Frames—"Go-Backs"—Supers

1. I have several colonies that hang in great numbers under the brood-frames, so as to show at the entrance. What does it mean? Should I smoke them up into the super or let them alone?

2. When I have "go-backs," should they be put on alone, or will it do to have another super under them ordinarily?

3. How often should supers be looked after, or rather examined, as to how far they are filled?

4. Do you prefer putting an empty super under or over a half-full one? I mean right during a good flow.

5. Would you contract a wide entrance during a cool spell in summer?

NEW YORK.

ANSWERS.—1. One thing it means is that the colony is strong. If they are clustering out during the middle of the day, it may mean that there is nothing afield for them to do. If a colony clusters out while others are at work, it may mean that they are about to swarm, or it may mean they are lazy. In any

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case it will do no good to smoke them in.

2. That depends. If early enough in the season so that you think another super can be finished, a "go-back" may be put on with another super, or even with 2 or more other supers. More than one "go-back" may be put on a colony. Measure the strength of your colony and the strength of the flow, and act accordingly. Late in the season be cautious about asking too much. (It should be explained that a "go-back" is a super filled with unfinished sections taken from a number of supers and put back on a hive to be finished. If you wait till the corner sections of a super are all fully sealed, sometimes it will take so long that the middle sections will be darkened.)

3. Every 10 days is not far out of the way, generally, only make sure that they are never crowded so as to lack storing-room.

4. My practise has been to put the empty one under until near the close of the season. Some good bee-keepers, however, prefer to put them over every time.

5. No. Takes too much work. But if I had only a few colonies, and worked them as a sort of pastime, I might change the entrance according to the weather.

Swarm Spotting Clothes

A swarm that issued recently spotted the clothes on the wash-line. Is it a common thing for swarming bees to spot clothes? I thought it occurred only when the bees have a cleansing flight in the spring? INDIANA.

ANSWER.—I don't suppose it is a common thing, and I don't know enough about it to say why it should have been so in your case. One can imagine, however, that if bad weather had delayed the swarming for a day or more, and the swarm should issue immediately upon the weather brightening up, that the bees might empty themselves a little after the manner of a spring cleansing flight.

Uniting Swarms—Wintering Bees Outdoors—Kind of Bees

1. How can I unite a swarm with one that has swarmed 3 or 4 days ago? (Second and third swarm from the same hive.)

2. How would you advise me to winter my bees, as my cellar isn't very good? How would it do to put them all in a row about 6 inches apart and put straw between them, and over the top of them? Should the hive be left open at the entrance or should it be closed?

3. Enclosed find bees out of 2 colonies, Nos. 1 and 2. Are they the same kind of bees? and what kind are they? CENTRAL MINNESOTA.

ANSWERS.—1. In such a case there ought to be no trouble if you merely hive the third swarm in the same hive with the second swarm. Both have queens and bees from the same hive having probably the same scent.

2. Your plan ought to work fairly

well, of course with some sort of roof to keep the straw dry.

3. I don't know. It isn't easy, indeed impossible, to tell by seeing a single bee what the blood of a colony is. For example, take a colony of hybrids: one worker may be selected that to all appearances is pure Italian, and another that is pure black. Then when you put a bee in a letter and have it mashed in the mail, the case is still more difficult. I can only say that I should guess there is some black blood in each of the specimens sent.

Laying Workers Fill Cells With Eggs

I have one colony of bees in which I find many cells with from 2 to 6 eggs in each. And at the front end of some of the combs there are cells that seem to have 30 or 40 eggs in each. I never saw anything like it before. I could not find the queen. Did laying workers try to fill the cells with eggs? IOWA.

ANSWER.—Almost certainly it is the work of laying workers. You will probably find that if any drone-cells are in the broodnest the nuisances have been specially favorable to them. Also, you will be likely to find one or more queen-cells, and in these there may be as many as a dozen eggs in each. Better break up the whole business, giving combs with adhering bees to other colonies.

Late Transferring of Bees

Last fall I purchased 3 colonies of bees in home-made hives of the Langstroth pattern. I found that the frames were badly made so that the combs were crooked—in fact, they zigzagged in every shape. I left them just as they were, fed the bees steady all winter, and they are good and strong now, but will not get more than enough honey to feed themselves through the coming winter. I would like to get these bees out of the old hives. Would you advise transferring them at this time (August 3)? ARKANSAS.

ANSWER.—Perhaps it may be as well to leave them as they are till next spring or swarming time. Still, it may be all right to transfer this fall, if you are sure of a good fall flow after transferring.

Requeening Colonies—Spring Protection of Hives

1. If I wish to requeen my apiary without the trouble of hunting the old queens, may I not buy fertile queens of this year's rearing, and place them (in the cages that they are shipped in), in the hives, and let them eat their way out with the help of the worker-bees? And then will not the young fertile queens kill the old ones? Or is the old one likely to kill the young one?

2. I wish to give my hives spring protection. I have read of roofing-paper or felt being used, but would not this plan do? That is, just get some dry-goods boxes (which can be done very cheaply), and both sides and bottoms being made of matched lumber,

take the tops off, and invert the dry-goods box over the hive, a sufficient hole for entrance being cut into the dry-goods box to open over the hive-entrance? I figured on no packing of any kind between the box and hive.

3. Would not ordinary oats-straw covered over the hives, leaving an entrance, be good spring protection? Or would a wet spring keep the hives too damp?

WISCONSIN.

ANSWERS.—1. If you put a laying queen, no matter how young, into a colony, leaving the old queen present, you may count on the new queen being killed as soon as she gets out of her cage—no, not killed immediately, but balled, and maltreated till she is dead. The same holds true with regard to a virgin introduced; only if it be late in the season, and the bees have a queen that they desire to supersede, the virgin would be allowed to supersede her. Possibly this might hold good at any time when the bees desire to supersede a queen, and possibly it be as true of a laying queen as of a virgin; I don't know.

2. Your plan may work, but the trouble is that when the sun shines out for a short time, or even for a long time, the bees don't get the benefit of it, the dry-goods box keeping them cool; whereas with the black felt they would be made warmer than with the naked hive.

3. It will be all right if some covering to shed the rain is over the straw, or if the straw is so placed as to shed the rain.

Afterswarms—Cotton Honey for Winter Stores, Etc.

1. After a swarm has issued and has been hived, what shall I do to keep the parent colony from swarming again, or casting after-swarms? Shall I cut out the queen-cells? If so, how long after the swarm has issued shall I do it? After the swarm has been hived, shall I set the swarm, or new colony, on the old stand, and move the parent colony a few feet away?

2. I have only starters in my hives. Would it be advisable to give the new colony a couple of frames of brood from the old hive, or let them draw out the starters and fill up the combs themselves?

3. The queen in the colony is not clipped. Would it do to clip her this late in the year?

4. Cotton is one of the chief crops raised here. I understand it is a great honey-producing plant. Would it do for the bees to winter on? You know it has the peculiarity of expanding and bursting the cells if kept for a while in the combs.

5. What are the names of the different bee-papers that have been started and discontinued in the United States? OKLAHOMA.

ANSWERS.—1. If you cut out all queen-cells but one a week after the swarm issues, there ought to be no more swarming. But sometimes a queen-cell is so hidden that you will be pretty sure to miss it. Again, the only cell you leave may have only a dead grub

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in it, leaving your colony hopelessly queenless. If you set the swarm on the old stand and move the mother colony some distance away, the swarm will get all the field-force, weakening by just so much the mother colony, making it less likely to swarm. But a lot of young bees are hatching out all the time, building up the colony to such extent that when the first virgin is ready to go with a swarm, which will be in about 8 days, there may be a strong enough force to go with her.

I'll give you a better plan than either: When the swarm issues, put it on the old stand, and put the old hive close beside it. A week later move the old hive to a new stand. That, you will see, will not only drain the mother colony of all the field-bees it had at the time of swarming, but also of all that have become fielders since then, leaving it so weak and discouraged that it will not be likely to have any thought of swarming.

2. Some think it best to give a frame of brood to the swarm—not 2—while others give none. I don't know which plan is best—perhaps giving the one brood.

3. After a queen is laying she may be clipped at any time when most convenient.

4. I have had no experience with cotton honey, but from the fact that I do not recall seeing any objection to it for winter stores I suppose it is all right.

5. That makes me throw up my hands. The number is legion, and I'm not sure that a whole day's searching would make sure of getting them all. Besides, what good? Why not let 'em rest quietly in their graves?

Varying Effects of Bee-Stings

My little girl, 11 months old, has been stung 3 times lately. The first time just below the ear, the second time on the hand, and neither sting swelled much or seemed to cause her much pain. The last time she was stung on the hand, and it swelled very tight, almost to her elbow, and caused her much pain for several hours. The bee that stung her was given her in a poppy by her sister.

1. Why did the last sting swell so much more than the others?

2. Would the fact that the bee had been feeding on the poppy have anything to do with it? The bees work on poppies here in the early morning, and as my children say, they "go crazy" for a short time. They don't seem to bother them in the afternoon.

COLORADO.

ANSWERS.—I don't know. Very likely the place had something to do with it. There is a great difference in the painfulness of stings, and also in the amount of swelling, and it is not easy to say just why in all cases. A sting on one part of the hand may swell more than on some other part. One sting may be deeper than another. One may be left in longer than the other, giving more time for more poison, hence more swelling.

2. If the poppy should make any dif-

ference, one would suppose it would have a quieting effect. I don't suppose, however, that the poppy made any difference. Still it is not impossible that it might.

Introducing Queens—Carniolans

1. I was thinking of buying as many queens as I have colonies next spring, and introducing them as Mr. Abbott says, putting the new queen on top of the frames for a day or two, then dividing the colony, putting the new queen in one hive and the old queen in the other. I thought in this way to get two strong colonies from each one. Do you think the plan would be a success?

2. Is an untested queen guaranteed to be mated, and to lay worker-eggs?

3. Do queen-breeders furnish a queen-cage with each queen?

4. Do you think Carniolans are more hardy than Italians for wintering? Would it be wise to cross them?

NEVADA.

ANSWERS.—1. The plan will work. It may be well to leave the old queen on the old stand, putting the caged queen with the larger part of the brood on a new stand. If this is done about the usual time of swarming, or a little in advance, and all the brood is given to the new queen, you will have a shaken swarm, with little danger of the old queen swarming again.

2 and 3. Yes.

4. I'm not sure, but I don't believe they are hardier. If you have an apiary of pure Italians, better try any sort of crossing only on a small scale until you are sure you will like the cross better.

Why Use Improved Hives?

I am not a young man in years, but am young in the knowledge of bees. I keep bees only for the honey I can get. What use is there for me to use patent hives when I know nothing about them? Why is not my old-fashioned gum with a good big, plain box-cap just as good for getting the same amount of honey in a season as the patent hives?

MISSOURI.

ANSWER.—Let me say, first, that most of the hives in use now by practical bee-keepers have no patent on them, the patent on the Langstroth movable frame having expired some years ago. So your question probably is, What advantage is there for you in movable-frame hives over common box-hives? Perhaps there is no advantage. It depends upon circumstances. The movable-frame hive is no better for the bees than a box-hive; in general not so good. It has really only one advantage over a box-hive, but sometimes a single advantage counts for much. A man with his head on has the single advantage over one with his head cut off that he still has his head on; but that is a considerable advantage. The one advantage that the movable-frame hive has over the box-hive is that the frames can be taken out and put back again. But that advantage is of no value to those bee-

keepers who never lift out the frames from one year's end to the other. If I had no notion of ever lifting out a frame, I would prefer box-hives.

Possibly you may want to know what advantage there is in being able to lift out frames. For one thing, you can tell by lifting out the frames whether a colony is queenless or not, and if it is queenless you can remedy it. With a box-hive it is practically impossible either to detect or to cure queenlessness. That one difference between the two kinds of hives is enough to decide in favor of the movable-frame kind,—provided one intends to take advantage of the movable feature. It would be a pretty long story to tell all the things that can be done with a movable-frame hive that can not be done with a box-hive, among which are examining for disease and treating for the same, introducing queens, strengthening weak colonies by giving frames of hatching brood, etc.

Starting New Colonies of Bees

When is the proper time to start new colonies of bees in this climate—40 miles south of St. Louis? What is the best method for a beginner to take in doing so?

MISSOURI.

ANSWER.—The very best time is at the time when bees are inclined to swarm naturally. Bees begin to swarm when honey begins to yield well, and more or less colonies may swarm so long as honey yields, although most colonies do their swarming during the early part of the honey-flow. You may even make increase successfully in the month of September if you make the new colonies strong enough. The earlier you start a colony the less need of its being strong, as it has a longer time to build up before winter.

It is not easy to say what may be the best way for you. What may be best for one may not be best for another. Perhaps the easiest way is to take half the combs, bees and all, out of a hive and put into another hive, filling out each hive with combs or frames filled with foundation, setting the hives side by side, as nearly as possible on the old location, trusting to the queenless part to rear its own queen.

A better way is to look four days later and see which hive contains eggs, and give a laying queen to the other part. That, of course, involves buying and introducing a queen.

If you want the bees to rear their own queen, here is a better plan: Find the queen, and put her with 2 frames and all adhering bees into another hive on a new stand. A week later a number of queen-cells will be in the now queenless colony, when you let the hives exchange places, and the bees will do the rest. If you want to have more than one new colony, you can divide the queenless part, putting the larger half on an entirely new stand.

As you have just obtained the book, "Forty Years among the Bees," you will do well to turn to page 252, where you will find several pages about artificial increase.

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Breeding Bees by Selection for Improving their Honey-Producing Character

BY F. W. L. SLADEN, F. R. S.

It is a fact well known to breeders of animals that to obtain and maintain permanent improvement in any character it is necessary to breed strictly by selection from both parents in successive generations. Such breeding by selection has in many cases resulted in great improvements and in the production of many new varieties. Domestic poultry are a familiar example. In the case of bees selection of the male parents has hitherto been practically impossible, at least in this country, in all parts of which ordinary bees are to be found, because pairing takes place upon the wing some distance from the hives, and we cannot prevent some of our queens from pairing with drones from neighboring apiaries.

In my early efforts to improve the honey-producing character of my bees I found no great difficulty in selecting the best honey-producing colonies, and breeding from them in successive generations on the female side; but on the male side I had to content myself with rearing each season a large number of drones of best honey-producing parentage and grandparentage, and eliminating as nearly as possible all drones of other parentage. By this means a considerable number of unions between queens and drones of best honey-producing parentage were effected, but I found very great difficulty in identifying the offspring of these unions, so that in breeding the next generation it was impossible in every case to tell whether outside blood had been included or not, and thus much of the improvement that had been effected was liable to be lost.

In 1905, however, the great difficulty in identifying the offspring of the unions between queens and drones of my best honey-producing parentage was practically overcome by the employment of a method of selection by color. . . . The object of the present paper is to explain more fully this method of selection by color for the improvement of the honey-producing character.

The common bee of this country, as everybody knows, has the ground color of the body entirely black. In 1901 and 1902 I crossed my bees with selected individuals of one of the best honey-producing strains of the American Golden Italian bee, in which a considerable portion of the abdomen is of a bright golden-yellow color. The result in the second and third generations of the cross-breeds was that the queens were exceedingly prolific (in spring), and the bees very vigorous, but in almost every other character these cross-breeds were extremely variable. Taking the two characters of color and honey-production, I got—

1. Dark-colored bees that were poor honey-producers;
2. Dark-colored bees that were good honey-producers;
3. Bright-colored bees that were poor honey-producers; and
4. Bright-colored bees that were good honey-producers,

as well as bees that were intermediate between these varieties. The best colonies of good honey-producers produced larger amounts of honey than colonies of ordinary English bees, a fact which I attributed partly to the greater prolificness of the queens, partly to increased vigor, and partly to slight augmentation of the good honey-producing character due to cross-breeding. Some of the best honey-producing colonies were of the brightest color. It was therefore clear that there was little or no correlation between the color character and the honey-producing character—in other words, that the two characters were inherited independently.

My next step was to eliminate all the bright-colored bees except those that were best honey-producers, and to rear queens and drones from the latter only, and these in the largest possible numbers. Thus the only drones of bright-colored parentage that paired with the queens reared were of best honey-producing parentage. These drones considerably brightened the color of their young, and thus it became possible to distinguish, by the brighter color of their young, the queens that had been fertilized by drones of my best honey-producing parentage from those that had been fertilized by drones of variable honey-producing parentage and by drones from neighboring apiaries, all of which produced darker young. This distinction could be made as soon as the first few hundred workers had hatched—namely, in less than a month after the queen was fertilized.

This method of selection by color for the improvement of the honey-producing character was also employed and rendered more precise during the season of 1906.

The laws governing the inheritance of characters in cross-bred plants and animals have always been a puzzle to breeders. Lately, however, they have been carefully studied and much elucidated by Bateson and others by means of elaborate breeding experiments. An excellent account of some of these experiments, with the conclusions they point to, is given in a report to the Royal Society by Prof. Bateson and Miss E. R. Saunders, published in 1902. This important work confirms a remarkable law which was first discovered and enunciated by Mendel as long ago as 1865,—as the result of experiments he made in cross-breeding varieties of the garden pea. Mendel's discovery is too lengthy to be given here, but the essential part of it is "the evidence that the germ cells of gametes produced by cross-bred organisms may in respect of given characters be of the pure parental types, and consequently incapable of transmitting the opposite character; that when such pure similar gametes of opposite sexes are united together in fertilization, the individuals so formed and their posterity are free from all taint of the cross." (From Bateson and Saunders' Report, page 12.)

For instance, in the second and later generations of cross-breeds between hoary-leaved and glabrous-leaved varieties of the garden stock, Miss Saunders obtained certain numbers of hoary-leaved individuals which, when bred together, were found to be incapable of producing glabrous-leaved individuals, and nearly all

the glabrous-leaved individuals that were obtained, when bred together, were found to be incapable of producing hoary-leaved individuals. Atropa (the Deadly Nightshade) was also found by Miss Saunders to obey Mendel's Law in the inheritance of yellow-colored and black-colored fruits. Prof. Bateson found that poultry obeyed Mendel's Law in the inheritance of "single" combs and "rose" combs, and in that of "single" combs and "pea" combs. More recently Hurst has found that poultry obey Mendel's Law in the inheritance of many other pairs of opposite characters. In their Report Bateson and Saunders give a long list of pairs of characters in animals and plants that had, up to 1902, been observed to obey Mendel's Law; one of the most remarkable of these is the waltzing habit and the absence of the waltzing habit in mice.

Bateson and Saunders' work, which only became known to me in the winter of 1905-6, is likely to be a great help in the work of endeavoring, in my cross-bred bees, to obtain individuals with the bright-color character and best honey-producing character that are incapable of transmitting any mixture of the opposite dark-color and poor honey-producing characters to their young. In the case of the bright-color character it is likely that this object has already been attained in some examples. The best honey-producing character is a complex one, and there are indications that it is largely the result of the combination of several characters, and that some of these are more or less correlated to one another, and that others, like vigor, are the direct result of cross-breeding. The best honey-producing character is partly dependent on longevity (of workers), prolificness in late spring (which acts favorably), prolificness at other seasons of the year (which may act unfavorably), and on other characters. It is impossible to forecast how much improvement in the honey-producing character will be obtained when, by cross-breeding and selection, its component parts have to some extent been separated and re-united in new combinations.

The honey-producing character of a certain race or variety of bee may certainly vary very much in different climates. In the climate of some parts of the United States the honey-producing character of the Italian bee is exceedingly good, but in the climate of Great Britain, which during the honey-flow is much colder, more cloudy, and more windy than that of the United States, the Italian bee is not a good honey-producer, and the English bee is a better one. This shows that breeding for the improvement of the honey-producing character in Britain must be carried on in the British or in a similar climate; also that the English bee is a better bee to work upon than the Italian. Crossing the English bee with sufficient Italian blood to enable one to brighten the color for practicing selection by color improves it for the purpose of breeding for the improvement of the honey-producing character, because it gives it increased prolificness in spring, vigor and variability.

In the second and third generations of my cross-breeds it was a common thing to find a queen that would produce some

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individuals (workers and queens) that were quite dark, and others that were as extensively bright-colored as, or even more so than, individuals of the original American Golden Italian strain. Of course these bright individuals had no more of the American Golden Italian blood in them than the dark individuals. It is therefore plain that it is impossible to judge the amount of foreign blood in cross-breds by the extent of the bright color they show, especially in the case of individuals that are the result of selection by color.

Although the bees now bred by color-selection in Ripple Court Apiary differ entirely in nature from any foreign bees, yet in appearance they closely resemble American Golden Italian bees: the queens are superficially indistinguishable from imported American Golden Italian queens, and in many colonies the workers can only be told from American Golden Italian workers by their much more active running over the combs when the hive is opened, and by their generally more distended bodies and sometimes larger size.

To distinguish the brightly-colored bees bred in Ripple Court Apiary for the improvement of the honey-producing character, the name of "British Golden" has been given to them. This name was first applied to the 1906 selections.

As regards the results of the breeding by color-selection in Ripple Court Apiary, it is too early to say much. The honey-producing results of the 1906 selections will not be known until the summer of 1907, so the results of only one season's work, that of 1905, have so far been obtained. These were very satisfactory, and it has become evident that selection by color has already changed the bees from variable cross-breds into a distinct variety with many characters that are fast becoming fairly constant; at the same time a great improvement in the temper has been noticed.

There is a difficulty in the transmission of worker characters through drones besides that of selecting the drones. I refer to the difficulty—by no means great or insurmountable—that results from the theory that the drone is produced parthenogenetically. The workers of a colony inherit their characters through the drone that fertilized the queen of the colony, as well as through the queen herself, but the drones that are produced in the same colony by the same queen inherit their characters through the queen only. The said workers therefore, having a mixture of fresh blood, give a very unreliable indication of the worker characters the drones will transmit to their offspring, and in order to find out what worker characters the drones are likely to transmit we must go back to the colony that produced their mother. In the case of a fixed race or variety, the workers of the colony that produced the drones' mother show fairly accurately the characters that the drones are likely to transmit, but in the case of variable cross-breds, they are not likely to do so on account of variation. In the latter case, if a large number of sister queens are employed to produce drones, the drones may be expected, on the average, to transmit the characters exhibited by the colony that produced the drones' mothers, but drones produced by indi-

vidual queens might sometimes transmit different or opposite characters: the workers produced by these individual queens would give some indication as to whether they would be likely to do so or not. Therefore in breeding drones it may be well to state, on the assumption that the drone is always produced parthenogenetically, that the characters shown by the grand-parental colony are always of great importance, and that those shown by the parental colony are of some importance in cross-breds, but of very little importance in pure-breds.

—British Bee Journal.



Poor Honey Crop.

The honey crop is poor here. Bees will probably get enough, however, for themselves through the winter,—but no more.

JULES BELKNAP.

Sulphur Springs, Ark., August 3.

Working for Comb Honey.

I have 16 colonies of bees, and am working them for comb honey this season.

I like the American Bee Journal very much. I would not be without it. I find many useful hints and suggestions in it.

M. D. DICKINSON.

Springfield, Mass., August 6.

Nothing from White Clover.

So far white clover has yielded just about nothing. What has been gathered has been used in brood-rearing. Basswood is just opening now, so there is a chance of getting some surplus yet.

The monthly American Bee Journal is a dandy. If it doesn't succeed it will certainly not be the Editor's fault.

CHAS. O. BERGSTRAND.

Amery, Wis., August 1.

Good Honey-Flow.

We have had a good honey-flow for about 10 days. A day or so ago it seemed to stop suddenly, but it has started again, and we have quite a little honey from the second crop of alfalfa. We have an average of about one super per colony on 175 colonies. This has been a cold, backward season, and I am afraid the honey-crop will be quite a little below the average. We have had 3 swarms from 175 colonies, and they were small ones.

Rifle, Colo., August 3. JOHN STOTTS.

Disappointing Bee-Season.

The bee-season here has been very disappointing up to the present time. We got nothing from the first cutting of alfalfa, but there is a fine scope of bee-pasture here, and the bees are doing splendidly. If it continues good weather for a reasonable time, strong colonies will produce a large surplus of honey.

The American Bee Journal is a good help for the bee-keeper.

J. E. PATTON.

Deeth, Nev., August 7.

Worst Spring—Non-swarming Bees.

After the worst spring in the memory of the "oldest inhabitant" the white clover and basswood harvest has come and gone, giving us about 5,000 pounds of honey—about one-half, or a little more, being extracted—from about 155 colonies. The prospects are fair for winter stores, though there may be a little fall surplus honey.

It seems Mr. Hasty does not believe exactly in non-swarming bees, does he? I wonder if he ever had a colony that did not swarm when rightly attended to. And if he bred his stock from it, did the bees swarm as much as those that were bred in the time-

honored way of taking a swarming cell from a swarming colony?

When a man is always expressing doubts, it seems to me he ought to give a reason for the doubts that are in him, once in a while. I have never been called an optimist even by my best friend, but I have seen enough of bees to believe thoroughly that a practically non-swarming strain of bees can be bred, and will be developed within the near future. They will save a lot of labor for the apiarist.

E. S. MILES.

Dunlap, Iowa, August 2.

Fair Honey Crop Promised.

The honey crop promises to be fair at present. Thunder showers and hot weather prevail.

JOHN SEMMENS.

Prowers, Colo., August 5.

Bee-Keeping Slow.

With us bee-keeping is slow. It looks now as though the bees might go into winter with plenty of stores. I am having my surplus honey stored in brood-frames, in shape for feed next spring.

N. P. WHITMORE.

Gardner, Ill., August 12.

Not Much Honey.

I have 13 colonies of bees, and have had 8 swarms. I put 3 back into the hives they came out of, and they are staying all right as yet. They are working on sweet clover.

There has not been much honey taken here so far. I have about 100 pounds in sections. It is fine. I have sold all I had and could sell more, to neighbors and friends.

F. S. FOULK.

Arrowsmith, Ill., August 10.

Bees Have Done Well.

The bees have done very well so far. Some colonies having stored over 100 pounds, and are still rolling the honey in. White clover is yet in bloom, and the prospects are for a very good fall flow, if the weather permits.

B. F. SCHMIDT.

N. Buena Vista, Iowa, August 3.

Honey from Alsike Clover.

I have had 12 swarms from my 44 colonies, spring count, and the majority of them have been, and are, doing some work in the supers. They stored some section-honey from alsike clover, which is quite plentiful here, and they are now working on every little patch of white and sweet clover they can find; but the total product will be small at best.

A. F. FOOTR.

Mitchell Co., Iowa, August 12.

Bad Year to Work with Bees.

My bees are getting honey now from the goldenrod. The comb honey is nice that I have taken so far. I expect my bees will average about 100 pounds per colony this year, but I do not know exactly yet.

This has been the worst year I ever saw to do anything in the bee-yard. Either the wind blows, or something else interferes. It has also been the worst year to mate queens. I have reared all young queens this year, and am in a bad place to mate them. There are Carniolans on three sides of me, and I think they have a little yellow mixed in with their gray. Mine are all pure Italians now, and I am hoping to Italianize all of the bees around here next spring.

PERLEY S. SMITH.

Strong, Maine, August 15.

Yields of Honey.

Some correspondents seem to take exception to some of the honey-yields I quoted in my article to The Farmer, as mentioned on page 534. This is only what might be expected, as every bee-keeper measures the yield of every other bee-keeper by his own yields. But the honey crop more than any other crop is apt to vary according to the management of the bee-keeper.

The yield of honey from a field of buckwheat, which I mentioned, is an actual experience. The honey came in so rapidly from the field that the bees having access to it—a trifle over 30 colonies—would completely fill the hive with thin, newly-gathered honey in a single day.

In that article I was giving the possible

American Bee Journal

yield, and, therefore, the largest yield I had obtained from any given source, and not the average yield. As a rule, buckwheat does not yield a great amount of honey here, as our weather during its bloom is not usually favorable to a yield of honey from it. During the past 25 years, I have had yields only during 4 or 5 years, and this promises to be one of the good years.

Our principal sources of honey are dandelion, white clover and basswood. Our white clover yields are often excellent, but our basswood yields are often better; in fact, it has in a number of cases quite equaled the buckwheat flow I have referred to.

As to localities making a difference, I have had yards not 12 miles apart, that were almost opposites in conditions of the yield, with also a great variation in the time, while conditions in other yards hundreds of miles apart may be almost identical. M. V. FACEY.
Preston, Minn., August 12.

Best Crop in Three Years.

I see complaints from most places, of the light honey crop, while we on the Western Slope have the best crop in the 3 years I have handled bees. The spring was very late, and I fed heavily until June 10, when my 25 colonies were very strong. The alfalfa commenced to bloom then, and I have taken off 23 supers of honey, and have 40 supers on, with at least 20 of them nearly full. I think I will have all full, if the honey-flow lasts until September 10. But I have no swarm when there is a poor honey-flow.

There are so many bees in the valley here, that we get but little honey. There are 5,000 colonies in this part of the valley in Montrose County. It is about 20 miles long and from one to 5 miles wide. I kept bees in Missouri, but they never produced honey there as they do here. E. C. WRIGHT.
Montrose, Colo., August 13.

No Basswood Honey.

The basswood bloom is over now, and has been for a week or so. The result is no honey gathered from basswood this year, and I can say the same about clover. I have colonies with three stories full of bees, and when the basswood bloom was over, they had but 5 pounds of honey, so feeding is now the order of the day.

Yesterday, one of my colonies was overrun with robber-bees. The guilty colony was located immediately. While watching them in disgust, I recalled the plan of swapping places with the two hives, or, in other words, putting the guilty one where the robbing was being done. That settled it for a few hours, and then everything was worse than ever—robbing all over. I thought of trying the kerosene plan given on page 600, by W. H. H. Stewart, and it certainly settled the business. CHAS. O. BERGSTRAND.

Amery, Wis., August 12.

Good Honey-Flow Expected.

I notice by the American Bee Journal that the prospects for honey have been very bad in a great many places. Our bees rolled in honey during the last week of April and during May, but since the first of June we have not had any surplus honey. It has been so cold and cloudy that it is about all the bees could do to keep up brood-rearing in good shape.

We expect good weather during August, and a good honey-flow from the white clover.

We enjoy reading the American Bee Journal very much, and do not want to be without it. WM. WRIGHT & SON.
Westport, Ore., July 27.

Apiarian Photographs

We can use such right along. Of course we want good, clear prints. If you have an apiary that you think would look well on paper, have it photographed and send to us the result. While we may not be able to use all that come, we doubtless will be able to use most of them. Please send the picture, and on its receipt we will report whether we can use it. If we can, we will then request you to send some descriptive mat-

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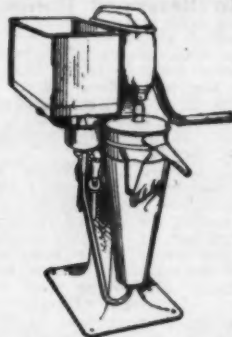
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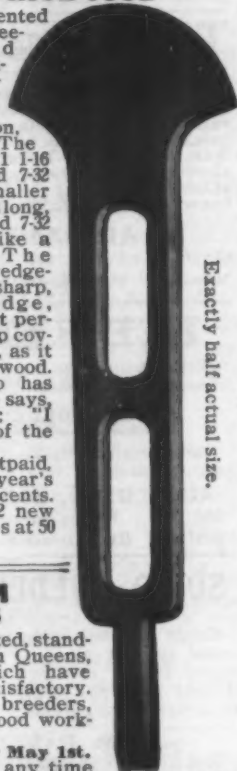
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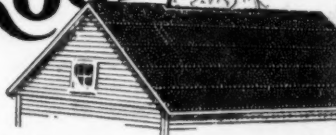
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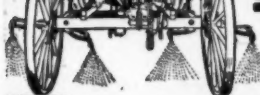


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For 14 years, we have been furnishing Bees and Supplies of every description to bee-keepers in the East. We have studied the East as a honey-section, know its honey-flows, and the line of goods best adapted to produce honey here. This is not theory with us, as we have about 700 colonies of bees, in four different sections, which produce a good crop of honey for us.

Honey-jars are now seasonable. We have several styles, No. 25 Jar, \$5.50 gross; 5 gross \$5.25 a gross; 1-lb. square Jars, \$5.00, 5 gross \$4.70 gross; 12-ounce round Jar, \$4.50 gross.

We handle both comb and extracted honey in season. Catalog free.

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American Bee Journal

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Moore's Strain of Italians

Produce workers that fill the supers, and are not inclined to swarm. They have won a world-wide reputation for honey-gathering, hardiness, gentleness, etc.

Mr. W. Z. Hutchinson, editor of the BEE-KEEPERS' REVIEW, Flint, Mich., says: "As workers, I have never seen them equaled. They seem possessed of a steady, quiet determination that enables them to lay up surplus ahead of others. Easier bees to handle I have never seen."

My queens are all bred from my best long-tongued three-banded red-clover stock (no other race bred in my apiaries), and the cells are built in strong colonies well supplied with young bees.

PRICES: Untested queens, 75c each; six, \$4; doz., \$7.50. Select, untested, \$1.00 each; six, \$5.00; doz., \$9.00.

Safe arrival and satisfaction guaranteed. Descriptive circular free. Address

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By RETURN MAIL OR MONEY REFUNDED

Italian Queens—each 75 cents or 6 for \$4. Caucasians—each \$1. or 6 for \$5. Warranted purely mated.

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GOLDEN AND LEATHER-COLORED

Prices of Queens	1	6	12
Untested	\$.60	\$3.30	\$6.00
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Select Tested	1.10	6.30	12.00

Safe Arrival Guaranteed

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are not injured in the mails. Give them a trial and you will be pleased. Instructions for introducing free. Select Italian Virgins, 40c; doz. \$4.50.

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Three-banded and Golden Italians. We warrant our bees free from disease of any kind, and guarantee safe arrival of all queens. We want your orders and will fill them promptly on and after June 1st, at 75 cts. untested, and \$1.25 for tested of either strain. A postal will bring you a circular. Send your orders to

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Will be promptly filled. We can supply both tested and untested Italian Queens, your choice of either imported or home-bred mothers.

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Tested queens, \$1.00; select tested queens, \$1.50; fair breeding queens, \$3.00; extra-select breeders, \$5.00—ready to go promptly. Untested queens, 75c; select untested queens, \$1.00—ready early in March. Yours for a prosperous 1907.

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230 colonies of bees and 50 acres of land, 1st class black and white sage honey range; an ideal mountain health home, good water, young orchard, many varieties of berries; 4 mile from P.O., and telephone. Price \$2800; \$1000 down, balance in 3 years at 8 percent. Address, J. E. GREEN, Matilija, Ventura Co., Calif.

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3-band from Imported Dark Leather, Moore's Long-Tongue, or my own. Golden from Laws, Doolittle's or my own. Caucasians and Carniolans from direct Imported.

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	Italians Before July 1st			After July 1st			CARNIOLANS			CAUCASIANS		
	1	6	12	1	6	12	1	6	12	1	6	12
Untested	\$.75	\$ 4.00	\$ 7.50	\$.60	\$3.25	\$ 6.00	\$.85	\$4.50	\$ 8.00	\$.95	\$ 5.00	\$ 8.50
Select Untested	1.00	5.00	9.00	.75	4.25	8.00	1.10	5.50	9.50	1.20	6.00	10.00
Tested	1.50	8.00	15.00	1.25	6.50	12.00	1.60	8.50	15.50	1.70	9.00	16.00
Select Tested..	2.00	10.00	18.00	1.50	8.00	15.00	2.10	10.50	18.50	2.20	11.00	19.00

Straight 5-band Golden Breeders.....	\$10.00	Select Caucasian Breeders	\$ 3.25
Select Golden Breeders	3.00	1 full colony without queen in 8-frame	
" 3-band "	3.00	dovetailed hive.....	6.00
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Select the Queen wanted, and add the price to the above prices.

Discounts on large orders. Contracts with dealers a specialty. No bee-disease has ever been in this section.

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Extracts from Catalogs—1907:

Chas. Dadant & Son, Hamilton, Ill.—This is the Smoker we recommend above all others.

G. B. Lewis Co., Watertown, Wis.—We have sold these Smokers for a good many years and never received a single complaint.

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All Bingham Smokers are stamped on the tin, "Patented 1878, 1892, and 1903," and have all the new improvements.

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FRIEND BEE-KEEPER:—You have had a hard time of it; colonies dwindled to half with some, and you were nearly discouraged. But the clouds have rolled away and prospects are fine for a good crop yet. Get **Marshfield Bee-Goods**, and make no mistake.

MARSHFIELD MFG. CO.,

Marshfield, Wis.

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KANSAS—S. C. Walker & Son, Smith Center.
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ARIZONA—H. W. Ryder, Phoenix.
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Caucasians, Italians, Cyprians and Carniolans
Prices in May and June: Caucasian—one extra best select breeding Queen, \$3.00 one best imported direct from Caucasus, \$4.50. Golden all-over Italians and Carniolans: One best extra select breeding, \$2.00; one best imported, best Italian or Carniolan Queen, \$2.50. Cyprian: one extra best select breeding, \$2.00; one best imported direct from Cyprus, \$3.50. Prices in July, August and September, 50 cents less than in May and June. Special prices for 50 and 100 Queens. Caucasian, Italian, Cyprian, and Carniolan Queens bred the best imported breeding Queens. The addresses must be clear: payments by postal money orders, Queens guaranteed to arrive in good condition in U. S. or Canada. To Australia, Ceylon, India, etc., \$1 more.

E. HAUNSCHILD, the Queen-Breeder,

20A13t Weissbach b. Palais, 1. Sa., Germany.

Honey and Beeswax

CHICAGO, Aug. 31.—The market is quite active in comb honey, and the choice grades of white sell at 18c per pound. There is not much call for anything that grades under No. 1, but prices are firm though not established on all kinds of honey. Extracted, clover, brings 8c; the ambers 7 to 7½c, with dark at 6 to 6½c. Beeswax sells readily at 32c per lb. No surplus here of any kind.

R. A. BURNETT & Co.

KANSAS CITY, Aug. 19.—The demand for comb honey is good, but receipts light, with no extracted in the market. We quote No. 1 white comb, 24-section case, per case \$3.50; No. 2 white and amber, 43; extracted, white, 8c; extracted, amber, 7c. Beeswax, 28c. C. C. CLEMONS & Co.

INDIANAPOLIS, Aug. 23.—Fancy white comb honey sells to the retail grocery trade in lots of 1 to 5 cases at 19 to 20 cents. No. 1 white 17 to 18 cents. Best grades of extracted in 5-gallon cans, sells for 11 to 12 cents. Some foreign extracted honey on the market is offered at slightly lower prices. Beeswax is plentiful, but in fairly good demand, at 43c per 100 pounds. WALTER S. FOLDER.

CINCINNATI, Aug. 22.—The market on comb honey is good, selling for 16½c wholesale. Extracted, white, in 60-lb. cans, at 10c; amber in barrels, at 5½ to 6c. Beeswax show at 32c.

C. H. W. WEBER.

CINCINNATI, Aug. 22.—Fancy and No. 1 comb honey finds ready sale at 15 to 16c. The present supply is about equal to the demand. The price of extracted honey is steadily advancing. We have quite a big stock on hand, and for that reason continue to quote amber in barrels at 5½ to 6½c, according to quality. Extracted, fancy white clover, in 60-lb. cans, at from 8 to 9c. For choice yellow beeswax, free from dirt, we are paying 30c.

THE FRED W. MUTH Co.

NEW YORK, Aug. 22.—We are beginning to receive small shipments of the new crop white comb honey, but do not expect to have any large lots until a few weeks from now. While the crop

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Will be found in

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American Bee - Keeper
for 1907

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Send for sample copy and our new illustrated price-list of BEE-SUPPLIES OF ALL KINDS.

Guaranteed highest quality at lowest price. Address,

THE W. T. FALCONER MFG. CO.
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[Established 25 years.]

For Sale

—1500 lbs. of extra-fine Clover Honey. This honey was extracted August 1st, from new combs. Since extracting, it has been kept at a temperature ranging from 80° to 120°. It is light in color and of a very heavy body. In fact, I am so proud of this honey that it will be a pleasure to mail you a sample. I shall put this honey up in clean new 60-lb. cans, and ask only 10c per pound for it.

JAY NORTH, North Adams, Mich.

is certainly very short in some sections of New York State, and in the East in general, there are some sections where they produced a larger crop than that of last year, but, of course, not enough to off-set the shortage in other localities. The quality is reported to be fine. The demand is good; no doubt white comb honey will find ready sale all through the early fall, providing prices are not prohibitive. Let us bear in mind the fact that comb honey is not a necessity but a luxury, and unless people can buy it at a certain price they will do without it. This we have experienced more than once heretofore. Fancy stock will find ready sale at 16c per lb. No. 1 at 14 to 15c, and No. 2 around 13c. Prices on dark and buckwheat not established as yet. The season is very backward, and we do not expect to have any buckwheat until middle of next month, if then. Extracted honey is in good demand, and prices are very firm. We quote California white sage at 8c to 9c, light amber at 7 to 7½c. Choice grades in barrels or kegs at 7 to 7½c per lb. Average common Southern at 6c to 6½c per gallon. Beeswax steady at 30 to 31c, according to quality. HILDRETH & SEGELKEN.

TOLEDO, Aug. 15.—There is practically no market on honey yet established, as bee-keepers are all holding their honey expecting to get enormous prices. We are getting for honey, fancy white clover in a retail way, 16 to 16½c; No. 1, 15 to 15½c, with no demand for darker grades. Extracted white clover, in barrels, brings 7 to 7½c. Beeswax 28 to 29c.

THE GRIGGS BROS. & NICHOLS CO.

PHILADELPHIA, June 25.—This hot weather has come on us so suddenly that it has stopped the sale of comb honey entirely, and extracted honey has been moving very slowly the last 10 days. We quote: Extracted honey, dark, in barrels, 6 to 7c; light extracted honey, in barrels, 7 to 8c; in 60-lb. cans, according to quality and quantity. Beeswax, 30c.

We are producers of honey and do not handle on commission. WM. A. SELSER.

DENVER, July 8.—Old comb honey, or last season's crop of comb honey, has been entirely cleaned up in this market for several weeks and new crop has not arrived yet. There is no change in the situation of extracted honey, and we have a good supply to meet the local demand. Our prices are 6½ to 7½ for light amber, and 7½ to 8½ for white, per pound. We pay from 24 to 26 cents for clean yellow beeswax delivered here. THE COLORADO HONEY-PRODUCERS' ASSOCIATION.

Headquarters for Bee-Supplies

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are the LOWEST, ESPECIALLY
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as almost all freight now goes through Cincinnati. Prompt Service is what I practice. Satisfaction guaranteed. Catalog mailed free. Send for same. You will save money buying from me.

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Fancy Comb and
Extracted
HONEY

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Office and Salesrooms, 2146-48 Central Ave. Warehouses, Freeman and Central Aves.

At \$11.00 buys 100 24-Section No-drip Shipping-Cases. Made of select basswood—top and bottom of one piece; all in flat, complete with 2-inch glass, paper and nails.

PRICE LIST—Cash with order.

	12-Sec. Cases	24-Sec. Cases
10.....	\$ 1.00	\$ 1.40
50.....	4.75	6.00
100.....	8.50	11.00
500.....	42.25	55.00
1000.....	80.00	100.00

Winter-Cases for 8 or 10 frame Hives, at \$1.40 each.

Address—SHEBOYGAN FRUIT-BOX CO., Sheboygan, Wis.

THE POULTRY DIGEST
25 cents per Year.

An Entertaining, Pushing and Progressive Poultry Journal. A live and instructive Periodical Different From All the Rest.

True to name, a concise and boiled down digest of all the doings in the Poultry World—A time-saving periodical; methodical, to the point, and conservative.

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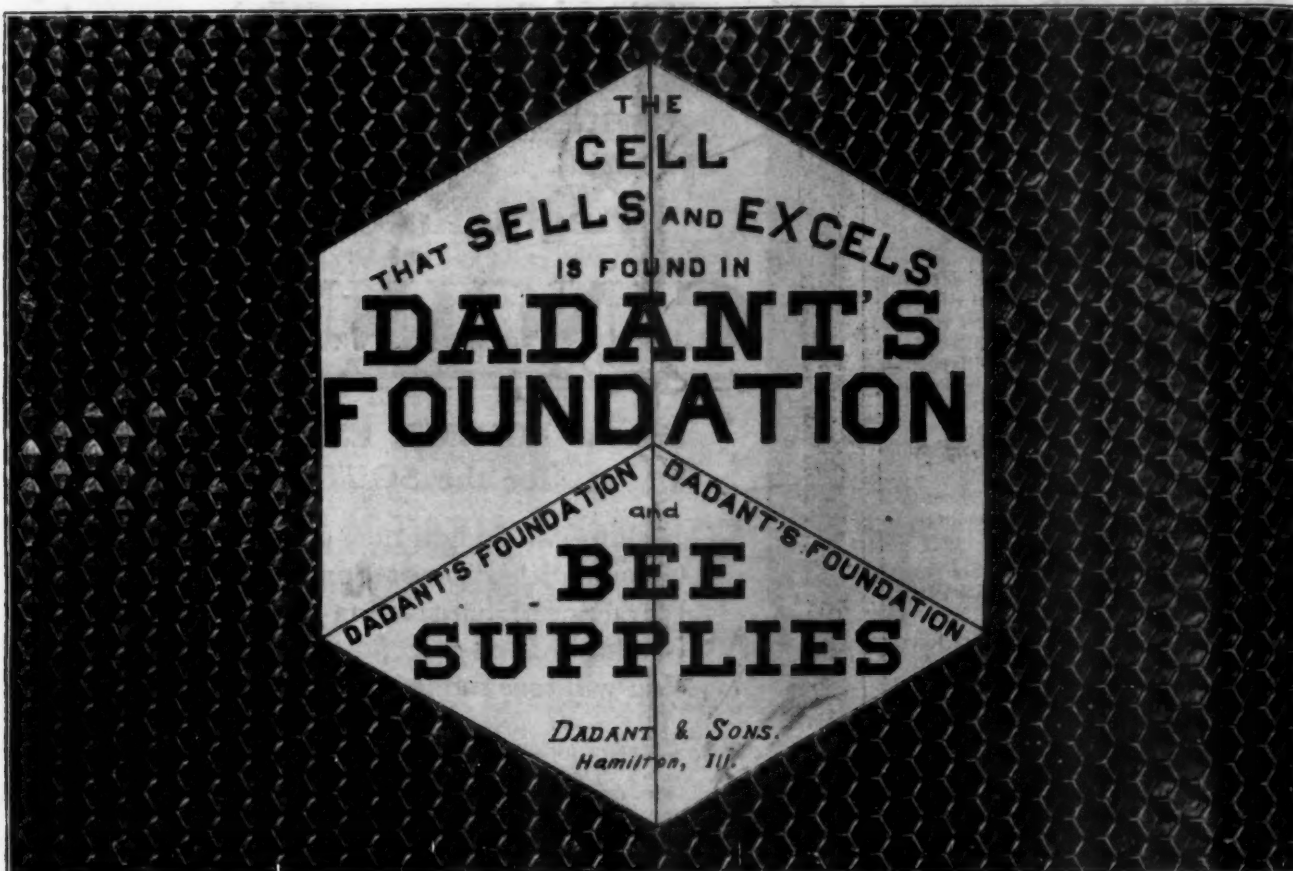
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